UCAC3 Proper Motion Survey. I. DISCOVERY OF NEW PROPER MOTION STARS IN UCAC3 WITH $0''.40\ \mathrm{yr}^{-1} > \mu \geq 0''.18\ \mathrm{yr}^{-1}$ BETWEEN DECLINATIONS -90° and -47°

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ABSTRACT

Presented here are 442 new proper motion stellar systems in the southern sky between declinations -90° and -47° with $0''.40\ \mathrm{yr}^{-1} > \mu \geq 0''.18\ \mathrm{yr}^{-1}$. These systems constitute a 25.3% increase in new systems for the same region of the sky covered by previous SuperCOSMOS RECONS (SCR) searches that used Schmidt plates as the primary source of discovery. Among the new systems are 25 multiples, plus an additional seven new common proper motion companions found to previously known primaries. All stars have been discovered using the third U.S. Naval Observatory (USNO) CCD Astrograph Catalog (UCAC3). A comparison of the UCAC3 proper motions to those from the Hipparcos, Tycho-2, Southern Proper Motion (SPM4), and SuperCOSMOS efforts is presented, and shows that UCAC3 provides similar values and precision to the first three surveys. The comparison between UCAC3 and SuperCOSMOS indicates that proper motions in RA are systematically shifted in the SuperCOSMOS data but are consistent in DEC data, while overall showing a significantly higher scatter. Distance estimates are derived for stars having SuperCOSMOS Sky Survey (SSS) B_J, R_{59F}, and I_{IVN} plate magnitudes and Two-Micron All Sky Survey (2MASS) infrared photometry. We find 15 systems estimated to be within 25 pc, including UPM 1710-5300 our closest new discovery estimated at 13.5 pc. Such new discoveries suggest that more nearby stars are yet to be found in these slower proper motion regimes, indicating that more work is needed to develop a complete map of the solar neighborhood.

Subject headings: solar neighborhood — stars: distances — stars: statistics — surveys — astrometry

1. INTRODUCTION

Proper motion surveys were once in the forefront of astronomy research. Providing a vast library of low mass stars, proper motion surveys provide a wealth of information to astronomers studying stellar populations, and in particular the stellar luminosity and mass functions that reveal how the Galaxy's stellar mass is divided among different types of stars. Proper motion surveys of faint objects, such as red dwarfs, subdwarfs, and white dwarfs, play a crucial role in identifying the Sun's nearest neighbors.

Historically, proper motion studies have been carried out by blinking photographic plates taken at different epochs to detect the changing positions of stars. The pioneering surveys of the second half of the last century include the Lowell Proper Motion Survey (Giclas et al. 1971; Giclas et al. 1978), the Luyten Half-Second cat-

alog (LHS) (Luyten 1979) and the New Luyten Two-Tenths catalog (NLTT) (Luyten 1980). With the aid of plate scanning machines and high powered computers, the traditional techniques used for proper motion studies are carried out in much the same way, only now using digitized images of the photographic plates. Utilizing various techniques and plate sets, these new computerized searches have revealed many new proper motion systems. Recent surveys of the southern sky — the region targeted by the present effort — include (Wroblewski & Costa 1999), (Scholz et al. 2000; Scholz et al. 2002), (Oppenheimer et al. 2001), the Southern Infrared Proper Motion Survey (SIPS) (Deacon et al. 2005; Deacon & Hambly 2007), the IPHAS-POSS-I proper motion survey of the Galactic plane (Deacon et al. 2009) and Lepine's SUPERBLINK survey (Lépine 2005; Lépine 2008).

The Research Consortium On Nearby Stars (RECONS) group[1] has also been systematically canvassing the southern sky for new proper motion systems as part of their effort to understand the stellar population of the solar neighborhood. To date, these discoveries have been reported in five of the *The Solar Neighborhood* (TSN) series of papers (Hambly et al. 2004; Henry et al. 2004; Subasavage et al. 2005a; Subasavage et al. 2005b; Finch et al. 2007). The new systems are given SCR (SuperCOSMOS-RECONS) names because they have been discovered using the SuperCOSMOS Sky Survey (SSS) data (Hambly et al. 2001a). The RECONS group continues to operate a trigonometric parallax program at the CTIO 0.9m telescope to confirm stars within 25 pc, with a focus on stars within 10 pc. In Table 1, we summarize the number of new stellar systems reported to be within 25 pc by RECONS and others via proper motion surveys that have distance estimates derived from photographic relations.

In this investigation we focus on stars in the newly released third U.S. Naval Observatory (USNO) CCD Astrograph Catalog (UCAC3) (Zacharias et al. 2010) found between declinations $-90°$ and $-47°$ that have $0\farcs40$ yr^{-1} $> \mu \geq 0\farcs18$ yr^{-1}, where μ is the proper motion. The search region and proper motion range match that in *The Solar Neighborhood* XVIII (hereafter, TSN18) (Finch et al. 2007), in which the lower proper motion cutoff was chosen to match that of the NLTT catalog. In TSN18 we presented 1606 new SCR systems, including 54 candidate common proper motion multiples. By utilizing the UCAC3 catalog with proper motions determined without the sole use of photographic plates, we can probe for new proper motion stars and companions that have been overlooked during previous searches. The new objects reported here have been dubbed UPM, for this new USNO Proper Motion search.

[1] *www.recons.org*

2. Method

2.1. UCAC3

The USNO CCD Astrograph Catalog (UCAC) project has been producing astrometric catalogs since October 2000, with the first release (UCAC1) (Zacharias et al. 2000) covering only 80% of the southern sky. The second catalog in this series (UCAC2) (Zacharias et al. 2004) was released in July 2003 with about the same level of completeness as UCAC1, but with early epoch plates paired with the Astrograph CCD data for improved proper motions. The UCAC3, released in August 2009, is the first from the series to have all sky coverage, and contains just over 100 million entries with a limiting magnitude of ∼16 in the UCAC bandpass (579-642 nm). UCAC3 also includes double star fitting, and has a slightly deeper limiting magnitude than UCAC2 due to a complete re-reduction of the pixel data (Zacharias 2010). A detailed introduction to the UCAC3 can be found in the release paper (Zacharias et al. 2010) and the README file of the data distribution.

The UCAC3 has been used in the present survey to probe for proper motion stars that have been overlooked during previous SCR and other searches. The Two-Micron All Sky Survey (2MASS) was used to probe for and reduce systematic errors in UCAC CCD observations, giving a greater number of reference stars to stack up residuals as a function of many parameters, such as observing site and exposure time. A detailed description of the astrometric reductions of UCAC3 can be found in (Finch et al. 2010).

2.2. PROPER MOTIONS

Out of the roughly 100 million stars in the UCAC3 catalog, about 95 million have calculated absolute proper motions. Most proper motions

are derived using the Astrograph CCD data combined with various earlier epoch catalogs in much the same manner as UCAC2. All input catalogs are reduced to the International Celestial Reference Frame (ICRF) by utilizing Hipparcos data or a similar, denser catalog, such as Tycho-2. For each position, standard errors are estimated. These errors are then used as weights to compute a UCAC3 mean position and proper motion, utilizing a weighted, least-squares adjustment procedure. For bright stars (R∼8–12), UCAC Astrograph CCD data were combined with ground-based photographic and transit circle catalogs, including all catalogs used for the Tycho-2 project (Høg et al. 2000), and ∼1.2 million positions from about 1950 AGK2 plates derived using the StarScan machine (Zacharias et al. 2008). For fainter stars (R∼12.5–16.5), UCAC Astrograph CCD data were combined with scans from the StarScan machine of roughly 3200 plates from the Hamburg Zone Astrograph, the USNO Black Birch Astrograph, and the Lick Astrograph, as well as a complete new reduction of the Yale Southern Proper Motion (SPM4) survey (Girard et al. 2010), and data from the SuperCOSMOS project (Hambly et al. 2001a). The SuperCOSMOS data were used in place of the Northern Proper Motions (NPM) (Girard et al.), in preparation, which was not complete when the UCAC3 was generated, but which will be included in the anticipated UCAC4 final release. An estimated error floor has been added to all catalogs used for the proper motion calculation. The largest root mean square (RMS) error contribution added was 100 mas for the SuperCOSMOS data due to zonal (plate pattern) systematic errors in the range of 50 to 200 mas, when compared to 2MASS data. For a detailed description of the derived UCAC3 proper motions see (Zacharias et al. 2010).

An effort was made to tag previously known High Proper Motion (HPM) stars in the UCAC3 catalog using the VizieR on-line data tool, along with published literature. The list includes roughly 51000 known proper motion stars covering the entire sky with $\mu > \sim 0\farcs18$ yr^{-1}. In the North we used the LSPM-North catalog (Lépine 2005) containing 61977 new and previously found stars having proper motions greater than $0\farcs15$ yr^{-1}. In the South we used many smaller surveys along with the Revised NLTT Catalog (Salim & Gould 2003), which produced 17730 stars with proper motions greater than $0\farcs15$ yr^{-1}. For a full list of catalogs used see the UCAC3 README file. This list is not comprehensive due to not having a complete list of proper motion surveys and the dificulty in matching some catalogs like the NLTT which do not have reliable positions. The proper motion values given in UCAC3 for these previously known stars come from the individual catalogs themselves and are not derived in the same manner as the UCAC3 proper motions mentioned above. These previously known proper motion stars are flagged in the UCAC3 data with a Mean Position (MPOS) running star number greater than 140 million.

The errors in proper motions reported in the UCAC3 release for stars brighter than mag 12 are only ∼1–3 mas/yr because of the large epoch spread, oftentimes as long as 100 years. For fainter stars found in SPM4, the errors are ∼2–3 mas/yr, while proper motions incorporating SuperCOSMOS data result in errors of ∼6–8 mas/yr.

2.3. SEARCH CRITERIA

The initial sample of 177231 proper motion candidates for this search included all UCAC3 stars in the southern sky between declinations $-90°$ and $-47°$ with $0\farcs40$ yr^{-1} $> \mu \geq 0\farcs18$ yr^{-1}. Winnowing of the sample was accomplished by examining previously known proper motion stars meeting the survey criteria to find a combination of UCAC3 flags with values indicative of real proper motion objects. To verify the set of flags adopted for final target selection, visual inspections were done of targets in selected sky regions to confirm true proper motion. In addition to meeting the declination and proper motion survey limits, all stars (1) must be in the 2MASS catalog with an e2mpho (2MASS photometry error) less than or equal to 0.05 magnitudes in all three bands, (2) have a UCAC fit model magnitude between 7 and 17 mag, (3) have a double star flag (dsf) equal to 0, 1, 5 or 6, meaning a single star or fitted double, (4) have an object flag (objt) between -2 and 2 to exclude positions that used all overexposed images in the fit, (5) have an MPOS number less than 140 million to exclude already known high proper motion stars, and (6) have a LEDA galaxy flag of zero, meaning that the source is not in the

LEDA galaxy catalog. After implementing these cuts, 9248 candidates remained.

These candidates were then cross-checked via VizieR, the published literature, and SIMBAD to determine if they were previously known. VizieR was used to cross-check various proper motion catalogs, such as NLTT, Hipparcos, and Tycho-2. If a survey was not available on VizieR, data were obtained from the published literature (as in the case for stars found in TSN18, which has only recently been added to the VizieR database.) A final search was done by checking the remaining candidates against the SIMBAD database. Cross-checks of the various compendia were performed using a 90″ search radius, with one exception (the NLTT catalog, see below). If a candidate was matched to a known proper motion star having roughly the same proper motion and magnitude, then it was labeled as previously known, and is not included in the sample reported here.

A larger search radius of 180″ was used when comparing UPM candidates to the NLTT catalog, which is known to have inaccurate positions. As shown in the Figure 2 histogram of (Bakos et al. 2002), the distances between their measured positions and Luyten's listed positions of LHS stars can be quite large. The number of objects with a given position offset levels off around 90″, beyond which fewer than 10 objects per 1″ bin are found. Thus, UCAC3 proper motion candidates with positions differing from Luyten's by less than 90″ are considered known, those differing by 90–180″ are considered new discoveries but are noted as possible NLTT stars in the tables, and those differing by more than 180″ are considered new discoveries. It is not a goal of this paper to revise the NLTT catalog and assign proper identifications and accurate positions to NLTT entries; rather, the goal is to identify new high proper motion stars.

The various cross-checks for previously known stars reduced the number of new candidates to a list of 4425. Each was visually inspected to verify proper motion by blinking the B_J and R_{59F} SuperCOSMOS digitized plate images. Objects without verifiable proper motions were then discarded, leaving 474 new proper motion discoveries. Of these new discoveries 32 were found to be part of a Common Proper Motion (CPM) system, including seven new discoveries having CPM to previously known primaries, leaving a total of 442 new systems.

A lower successful hit rate (5297 real proper motion objects / 9248 total "good" candidates extracted) of 57.3% was found for this search than the 78.1% successful hit rate obtained in TSN18. As in TSN18, the hit rate takes into account new, known, and phantom proper motion objects (phantoms are identified as moving objects but are not). The lower hit rate in the present effort is the result of at least three factors. First, some real objects were discarded early in the search due to the rigorous sifting mentioned above to obtain a more manageable sample for investigating, i.e. some of the selection criteria, particularly involving 2mass, were "too tight." Second, many phantom proper motion objects in the UCAC3 made the sample cuts because of incorrect matches between catalogs during the proper motion calculation. This is particularly common in the fainter stars for which the proper motion calculations rely on only two catalog positions. Third, other misidentifications arise from blended images, where two single star detections in the UCAC3 can be matched up to a single image in an earlier epoch catalog.

3. RESULTS

The 442 new UCAC3 proper motion systems are listed in Table 2. In Table 3 we highlight the 15 systems for which we estimate distances to be less than 25 pc. In both Tables we list names, coordinates, proper motions, 1σ errors in the proper motions, plate magnitudes from SuperCOSMOS, near-IR photometry from 2MASS, the computed $R_{59F} - J$ color, distance estimate, and notes.

3.1. Positions and Proper Motions

All positions on the ICRF system, proper motions, and errors are taken directly from UCAC3. For a few stars found visually, e.g. companions, no data could be obtained from UCAC3, so information was obtained from other sources (additional objects, see below). The average positional errors reported in the UCAC3 catalog for this sample are 52 mas in RA and 53 mas in Dec. The average proper motion errors are 8.5 mas/yr in $\mu_\alpha \cos\delta$ and 8.4 mas/yr in μ_δ.

3.2. Photometry

In Tables 2 and 3, we give photographic magnitudes from SuperCOSMOS for three plate emulsions: B_J, R_{59F}, and I_{IVN}. For sources fainter than mag ∼15, plate errors are typically less than 0.3 mag, but errors increase for brighter sources. Plate color errors are smaller, at roughly 0.07 mag (Hambly et al. 2001b). 2MASS JHK_s infrared photometry is given, with errors typically 0.05 mag or less due to the search criteria and because the stars are usually brighter than 16 in UCAC3 and are red, making them relatively bright, mag ∼ 10–14, in 2MASS. Companions found during visual inspection may be fainter and have consequently larger photometric errors. The optical (SuperCOSMOS) and infrared (2MASS) datasets are combined in a computed $R_{59F} - J$ color to provide an indicator of the star's color. In some cases, SuperCOSMOS magnitudes may not be given due to blending, no source detection or other problems where no magnitude is reported in the SuperCOSMOS data. 2MASS magnitudes are given for all but five objects that are not present in the 2MASS catalog.

3.3. Distances

Distance estimates are computed using 11 colors generated from the six-band photometry using the relations given in (Hambly et al. 2004). This method assumes that all objects are main sequence stars. The accuracy reported for this technique is roughly 26%, which is determined from the mean of the absolute values of the differences between distances for stars with trigonometric parallaxes and distances estimated via the relations. No distance estimate is given for stars that are too blue for the relations. For objects with incomplete photometry, the distance estimate will be less reliable. While only one relation is needed to produce a distance estimate, six are needed to be considered "reliable." This is half of the 11 total posibilities. Stars having fewer than six relations have been identified in the notes. For any star expected to have an erroneous distance (white dwarf, evolved star, subdwarf), the distance is given in brackets.

3.4. Additional Objects

During the visual inspection of the candidates, 27 additional proper motion objects were found, listed in Table 4. These objects generally are CPM companion candidates that either have a fainter limiting magnitude than implemented for this search, were eliminated from the candidate list by the search criteria, or have a UCAC3 proper motion less than $0\farcs18$ yr^{-1}. Proper motions from the UCAC3 data less than the $0\farcs18$ yr^{-1} cutoff of this paper are considered suspect from a visual inspection that compared the proper motion of the companion candidate. All objects detected during the visual inspection were investigated using SIMBAD and VizieR for previous identifications. If none were found, their proper motions were obtained from UCAC3, SPM4, or SuperCOSMOS, in that order of priority. Magnitudes were then obtained from SuperCOSMOS and 2MASS to compute distance estimates. Only four of the 27 objects found visually did not have a proper motion reported in any catalog. For stars that were not found in the UCAC3 data, positions were computed using the epoch, coordinates, and proper motion obtained from the corresponding catalog.

4. ANALYSIS

4.1. Color-Magnitude Diagram

In Figure 1 we show a color-magnitude diagram of the 465 proper motion objects reported in this sample having a $R_{59F} - J$ color. New proper motion objects are represented by closed circles while known objects (companions to new objects) are represented by open circles. Data points that fall below $R_{59F} \sim 17$ are CPM companion candidates noticed during visual inspection. The brightest new object, UPM 1542-5041, has $R_{59F} = 9.924$ and is estimated to be at a distance of 33.1 pc. The reddest object found in this search is UPM 1703-4934B with $R_{59F} - J = 6.30$, $R_{59F} = 17.31$, and estimated distance of 40.7 pc.

The subdwarf population is not as well defined in this paper as in TSN18 because there are far fewer new objects. Nonetheless, a separation can be seen below the concentration of main sequence stars. Finally, a single known white dwarf, WD 0607-530B, can be seen in the lower left of Figure 1.

4.2. Reduced Proper Motion Diagram

We show in Figure 2 the Reduced Proper Motion (RPM) diagram for all 465 objects in this

sample having a $R_{59F} - J$ color. New proper motion objects are represented by closed circles while known objects (companions to new objects) are represented by open circles. A reduced proper motion diagram takes advantage of the assumption that objects with larger distances tend to have smaller proper motions. While this is not always valid it can be used as a good method to separate white dwarfs and subdwarfs from main-sequence stars. We determine H_R as in TSN18 using a modified distance modulus equation, in which μ is substituted for distance.

$$H_R = R_{59F} + 5 + 5 \log \mu.$$

The dashed line in Figure 2 is the same empirical line used in TSN18 to separate white dwarfs from subdwarfs. This separation line has been shown from past SCR searches to be reliable in identifying white dwarf candidates. From the present survey, only one known white dwarf WD 0607-530B, a CPM companion candidate to UPM 0608-5301A, is seen clearly below the subdwarf region.

Subdwarf candidates have been selected using the same method as in TSN18 — stars with $R_{59F} - J > 1.0$ and within 4.0 mag in H_R of the the empirical line separating the white dwarfs are considered subdwarfs. From this survey there are 31 subdwarf candidates, all with distance estimates greater than 147 pc. Large distance estimates can be used to identify both subdwarf and white dwarf candidates, which are subluminous compared to main sequence stars and yield large distance estimates because they are intrinsically fainter than the main-sequence stars used to generate the photometric distance relations. The presumably erroneous distances for these stars are given in brackets in Tables 2 and 3. Follow up spectroscopic observations will be needed to confirm all subdwarf candidates.

4.3. New Common Proper Motion Systems

In this search we found 32 common proper motion systems (31 binaries and one triple), including 25 entirely new systems and seven hybrid systems containing both new and known objects. The triple system is a previously known system discovered as part of the automated search to have a newly discovered third component. The data for these systems are given in Table 4, where we list the primaries and companions, their proper motions, and the companions' separations and position angles relative to the primaries (defined to be the brightest star in each system). The distance estimates were used in conjunction with the proper motions and visual inspections to determine whether or not a pair of stars is physically associated. Because these objects were found during visual inspections, the proper motion and/or SuperCOSMOS magnitudes may be missing or suspect; in such cases, identifications as CPM systems are more tentative and identified in the notes.

In Figure 3 we compare the proper motions per coordinate for the 29 CPM systems for which both components have proper motions. CPM candidates that have proper motions from UCAC3 are represented by closed circles while those with proper motions from other sources are represented by open circles. Proper motions for the latter candidates were extracted manually from either SPM4 or SuperCOSMOS.

4.4. Notes on Specific Stars

UPM 0608-5301A is an M dwarf at an estimated distance of 37.1 pc with a known white dwarf as a possible companion. The B component (known white dwarf) is at a separation of $21.5''$ at position angle 120.7° from the primary. We estimate a distance of 34.2 pc for the white dwarf with an error of 20% using the relation of (Oppenheimer et al. 2001). See Table 4 for more details.

UPM 0835-6018C is in a possible triple system with NLTT 19906 and NLTT 19907. The A and B components are separated by $5.1''$. The C component has a separation of $113.0''$ at a position angle of 49.3° from the primary. See Table 4 for more details.

UPM 1230-5736AB The A component is estimated to be at 22.2 pc, and has $R_{59F} = 12.04$ and proper motion per coordinate ($\mu_\alpha \cos\delta$,μ_δ) = (-227.6,-66.5) mas/yr. NLTT 30961 is found $1.61'$ away, and NLTT lists a red photographic magnitude of 13.1 and proper motion per coordinate ($\mu_\alpha \cos\delta$,μ_δ) = (-216.7, -38.2) mas/yr.

The B component is estimated to be at 19.8 pc, and has $R_{59F} = 12.83$ and proper motion per

coordinate ($\mu_\alpha \cos\delta$,μ_δ) = (-243.0, -29.3) mas/yr. NLTT 30938 is found 1.68′ away, and NLTT lists a red photographic magnitude of 12.6 and proper motion identical to NLTT 30961. Thus, this nearby UPM double is likely the same as the NLTT double, but the relatively large offset from the NLTT makes the identification ambiguous.

UPM 1542-5041 is the brightest new HPM discovery from this effort. It has a distance estimate of 33.1 pc, R_{59F} = 9.92 and proper motion per coordinate ($\mu_\alpha \cos\delta$,μ_δ) = (182.4, -16.3) mas/yr. NLTT 40903 is found 2.46′ away, and NLTT lists a red photographic magnitude of 12.8 and proper motion per coordinate ($\mu_\alpha \cos\delta$,μ_δ) = (-244.2,-190.8) mas/yr. The discordant magnitudes and proper motions indicate that UPM 1542-5041 is not NLTT 40903.

UPM 1710-5300 has an estimated distance of only 13.5 pc, making it the nearest candidate in the sample.

4.5. COMPARISON TO PREVIOUS PROPER-MOTION SURVEYS

Most previously known HPM stars have been tagged in UCAC3 and their listed proper motions in UCAC3 were taken from their respective catalogs. Because no UCAC3 proper motions were determined, comparisons to other catalogs/surveys are therefore difficult. Nonetheless, within the sky coverage and proper motion regime of this paper, 66 stars have been found in both the Hipparcos and Tycho-2 catalogs that are not tagged as HPM stars in the UCAC3 catalog. This constitutes a small but ample number of stars that can be used to compare the bright end of UCAC3 proper motions to those in the Hipparcos and Tycho-2 catalogs. In Figure 4, we show the comparison between UCAC3 proper motions in RA and DEC to the Hipparcos (top) and Tycho-2 (middle) catalogs. For comparison we also plot the proper motion differences between Hipparcos and Tycho-2 in the bottom panel of Figure 4. This plot implies that for both the Hipparcos and Tycho-2 catalogs the UCAC3 proper motions show only small differences per coordinate at all declinations in the present search, with no significant systematics. The RMS differences of UCAC3 proper motions per coordinate ($\Delta\mu_\alpha \cos\delta$, $\Delta\mu_\delta$) when compared to Hipparcos are 7.5 and 6.6 mas/yr, respectively. When compared to Tycho-2 proper motion coordinates we find 5.5 and 5.9 mas/yr, respectively. A slightly lower RMS difference of 3.8 mas/yr in both coordinates is seen when comparing the Hipparcos and Tycho-2 proper motions for these stars.

To investigate fainter stars in UCAC3, we compare UCAC3 proper motions to SPM4 and SuperCOSMOS results. We compare proper motions using the SuperCOSMOS proper motions to bring the positions to the UCAC3 epoch with a 1.5 arcsec match radius. A 1.5 arcsec radius was also used to match UCAC3 to SPM4 with no need to correct for proper motions because both catalogs are on the same system and set at the same epoch.

A total of 137 objects meeting the proper motion and declination limits of this paper were found in all three catalogs. In Figure 5, we compare UCAC3 proper motions in the same manner as above with the SPM4 (top) and SuperCOSMOS (middle) catalogs. Again for comparison, we also include a plot showing the differences between SPM4 and SuperCOSMOS in the bottom panel of Figure 5. The RMS differences between UCAC3 and SPM4 per coordinate ($\Delta\mu_\alpha \cos\delta$, $\Delta\mu_\delta$) are 6.6 and 4.1 mas/yr respectively. Much higher RMS differences of 19.3 and 18.9 mas/yr are seen when comparing UCAC3 to the SuperCOSMOS proper motions per coordinate ($\Delta\mu_\alpha \cos\delta$, $\Delta\mu_\delta$). This comparison also indicates that proper motions in RA are systematically shifted in the SuperCOSMOS data, but are consistent in DEC. This high RMS including the systematic shift in RA is also seen when comparing the SPM4 to SuperCOSMOS proper motions per coordinate, yielding RMS differences of 19.9 and 17.5 mas/yr in $\Delta\mu_\alpha \cos\delta$ and $\Delta\mu_\delta$, respectively. The higher RMS differences for the SuperCOSMOS proper motions are in agreement with the findings of TSN18 where SCR proper motions were found to have an average deviation of 23 mas/yr total proper motion when compared to the NLTT and Hipparcos proper motions.

In TSN18 a total of 1662 objects were reported, of which 1615 match the proper motion and declination limits of this paper. During this UCAC3 search, 1298 of the 1615 objects reported in TSN18 were recovered, or a 80.4% succesful recovery rate. Objects missed in this UCAC3 survey are primarily those at the faint end, as the TSN18 survey reached to R_{59F} = 16.5.

The Hipparcos catalog contains 118218 total

objects of which 722 meet the proper motion and declination limits of this paper. Tycho-2 contains 2539913 total objects in the main catalog with 1273 of those objects matching the proper motion and declination limits of this paper. We recover 646 Hipparcos stars and 973 Tycho-2 stars using the search criteria of this paper, yielding recovery rates of 89.5% and 76.4% respectively. Objects missed in this UCAC3 survey is primarily due to UCAC3 lacking a source detection for ∼15% of the Tycho-2 objects. The relatively high recovery rates of UCAC3 when compared to these three efforts implies UCAC3 can be used as a reliable source to search for new proper motion stars with $\mu = 0.18$–0.40 arcsec yr^{-1} for other portions of the sky.

5. DISCUSSION

We have found 442 new proper motion systems including 474 objects with $0\farcs40$ yr^{-1} $> \mu \geq 0\farcs18$ yr^{-1} between declinations $-90°$ and $-47°$. In Figure 6, we show the sky distribution for the entire sample reported in this paper. The 474 new discoveries represent a 25.3% increase in new systems for the same region of the sky covered by previous (SCR) searches that used Schmidt plates as the primary source of discovery. While many of these new UPM discoveries are found along the Galactic plane, a region avoided by the SCR survey, additional new systems were found far from the plane. Areas in Figure 6 with a lower density of new discoveries have been heavily searched by previous proper motion surveys as seen when comparing to a similar sky plot presented in TSN18.

As shown in Figure 4 and 5, the proper motions obtained from UCAC3 compare well to the Hipparcos, Tycho-2, and SPM4 catalogs. However, we find that the SuperCOSMOS proper motions have a significantly higher scatter when compared to these catalogs, which confirms our similar result in TSN18.

We find 25 new CPM candidate systems, as well as 31 new subdwarf candidates that will need future spectroscopic efforts to be confirmed. In Figure 7, we show a histogram of the number of proper motion discoveries in $0\farcs01$ yr^{-1} bins for the present sample, highlighting the number of those having distance estimates within 50 pc. The increase in nearby systems at the lowest proper motions sampled here implies that more nearby stars are likely to be found at even slower proper motion regimes.

Finally, we have found 16 objects in 15 systems with distances estimated to be within 25 pc, and an additional 109 objects in 107 systems between 25 and 50 pc. The discoveries include UPM 1542-5041, which at $R_{59F} = 9.92$ is a surprisingly bright new proper motion discovery with an estimated distance of 33.1 pc. UPM 1710-5300, which is our nearest new candidate with an estimated distance at 13.5 pc. We anticipate that further exploration of the UCAC3 for new proper motion discoveries will result in more nearby star candidates, perhaps some even within 10 pc, where new discoveries are still being made (Henry et al. 2006)

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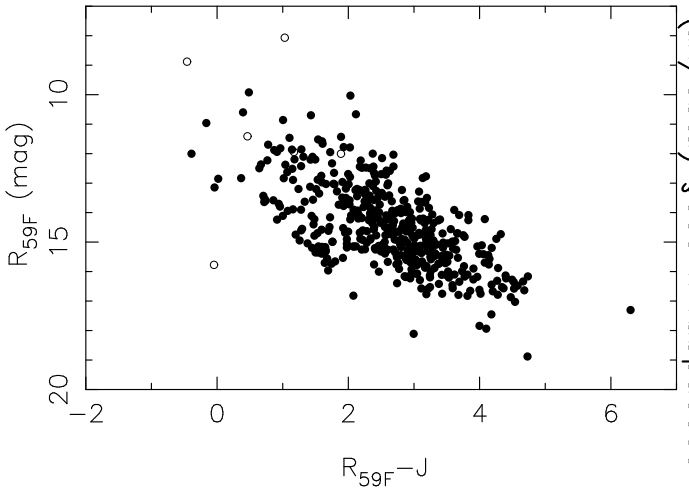


Fig. 1.— Color-apparent magnitude diagram for all proper motion systems in the sample having an $R_{59F} - J$ color. New proper motion objects are represented by closed circles while known objects (CPM companions to new objects) are represented with open circles. Data points below $R_{59F} = 17$ are CPM candidates noticed during the visual inspection.

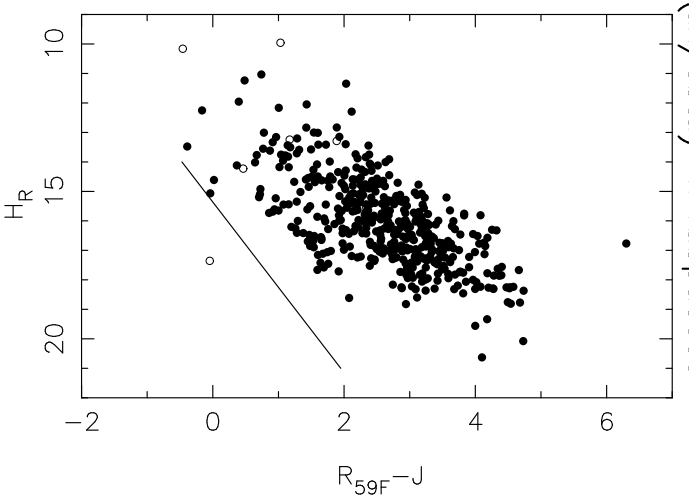
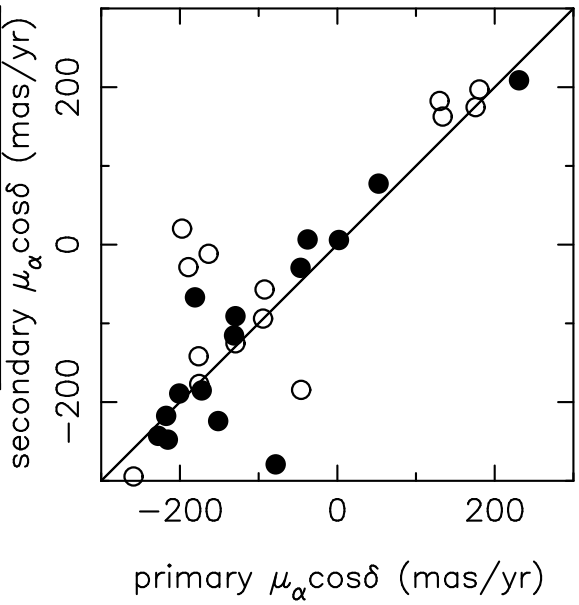


Fig. 2.— RPM diagram for all proper motion systems in this sample having an $R_{59F} - J$ color. New proper motion objects are represented by closed circles while known objects (CPM companions to new objects) are represented with open circles. The empirical line separates the white dwarf candidate from the subdwarf candidates, which lie above the white dwarf stars and just below the concentration of main sequence stars.



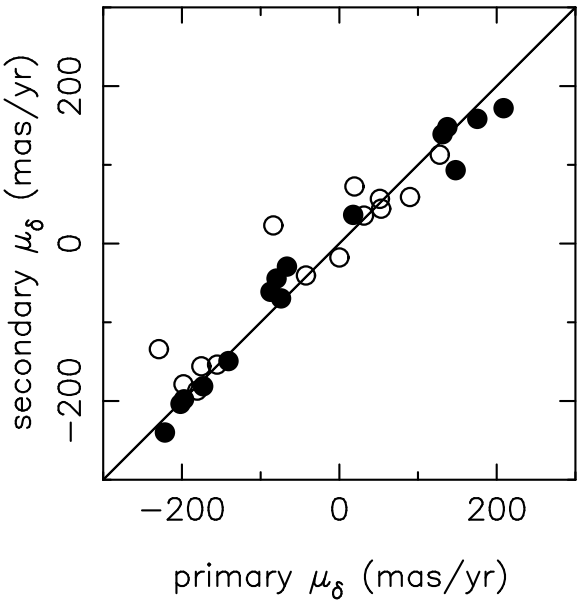


Fig. 3.— Comparison of proper motions per coordinate, $\mu_\alpha \cos\delta$ (top) and μ_δ (bottom), for components in CPM systems. Proper motions from the UCAC3 catalog are represented by closed circles while proper motions manually obtained through other means are denoted by open circles. The solid line indicates perfect agreement.

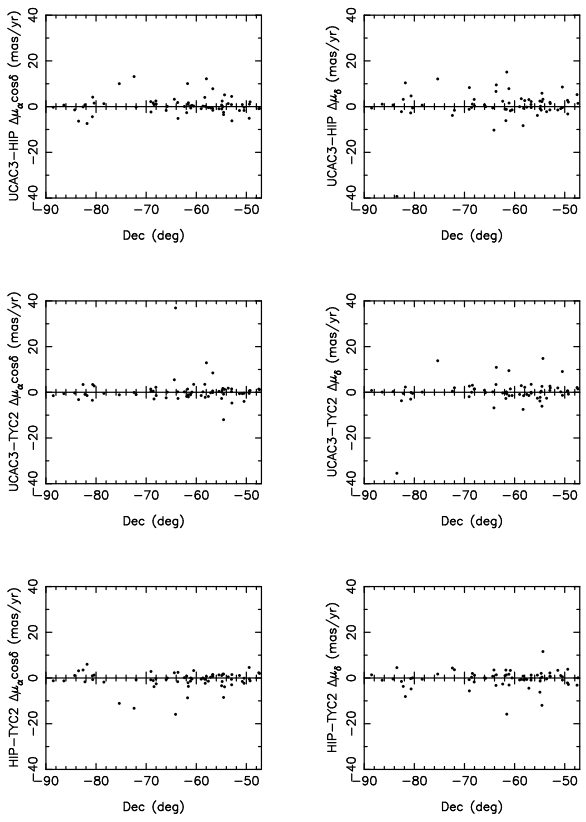


Fig. 4.— Comparison of UCAC3, Hipparcos and Tycho-2 proper motions per coordinate, $\Delta\mu_\alpha \cos\delta$ (left column) and $\Delta\mu_\delta$ (right column).

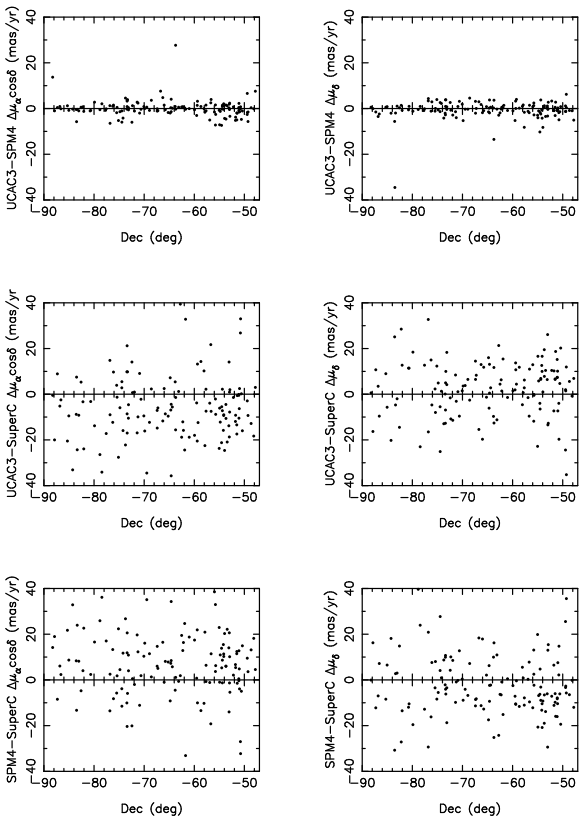


Fig. 5.— Comparison of UCAC3, SuperCOSMOS and SPM4 proper motions per coordinate, $\Delta\mu_\alpha \cos\delta$ (left column) and $\Delta\mu_\delta$ (right column).

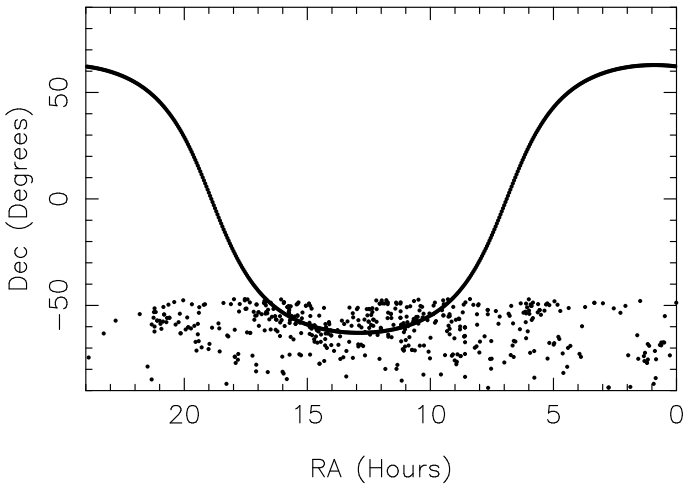


Fig. 6.— Sky distribution of all UCAC3 proper motion objects reported in this sample, i.e. those between declinations $-90°$ and $-47°$ having $0\farcs40$ yr^{-1} $> \mu \geq 0\farcs18$ yr^{-1}. The curve represents the Galactic plane.

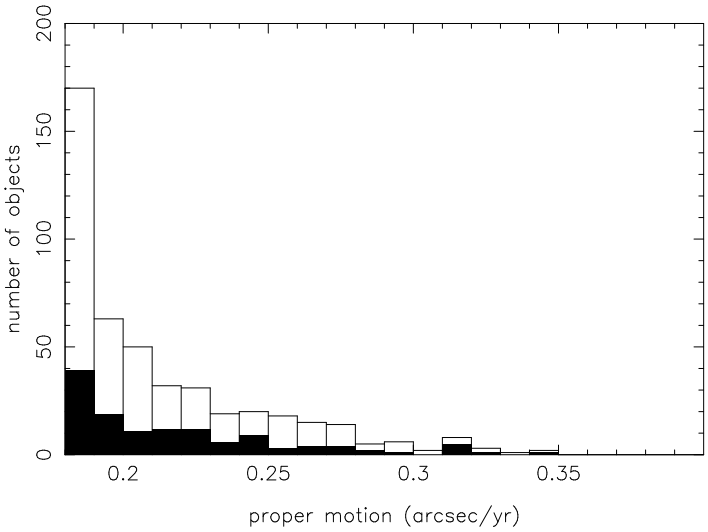


Fig. 7.— Histogram showing the number of proper motion objects in $0\farcs01$ yr^{-1} bins for the entire sample (empty bars) and the number of those objects having distance estimates within 50 pc (filled bars).

Table 1
New Proper Motion Systems within 25 Parsecs Based on Distances Using SuperCOSMOS Photographic Magnitudes

Paper	Systems $\leq$ 25 pc	References
TSN08	3	(Hambly et al. 2004)
TSN10	4	(Henry et al. 2004)
TSN12	18	(Subasavage et al. 2005a)
TSN15	25	(Subasavage et al. 2005b)
TSN18	31	(Finch et al. 2007)
SIPS1	1	(Deacon et al. 2005)
SIPS2	12	(Deacon & Hambly 2007)
this paper	15	(Finch et al. 2010)

Table 2

New UCAC3 High Proper Motion Systems between Declinations −90° and −47° with 0.″40 yr^{-1} > $\mu \geq$ 0.″18 yr^{-1}

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 0000-4843	480848	148604159	181.7	29.9	12.3	8.5	15.579	13.333	11.337	10.824	10.208	10.018	2.509	47.2	
UPM 0016-7327	14557586	59575305	184.8	-29.6	1.9	2.1	16.498	15.410	13.572	11.351	10.754	10.611	4.059	40.0	
UPM 0028-5501	25583309	125920383	190.0	-10.2	2.6	3.0	17.382	15.533	14.688	11.863	11.233	11.054	3.670	50.1	
UPM 0029-6724	26938223	81322056	184.7	43.5	1.8	1.4	15.228	13.197	12.132	11.065	10.412	10.244	2.132	60.7	
UPM 0032-6719	29092633	81607463	183.1	90.8	8.9	5.5	17.735	15.518	14.025	12.776	12.160	11.956	2.742	100.6	
UPM 0037-6725	33311860	81260513	297.2	-98.6	11.2	11.8	17.318	15.043	13.494	11.529	11.025	10.739	3.514	40.5	
UPM 0037-6844	33623179	76513673	249.0	44.0	7.8	7.6	17.173	15.016	13.408	11.571	10.983	10.701	3.445	41.1	
UPM 0040-6834	36433102	77158520	170.0	78.5	7.4	7.1	15.386	13.502	12.456	11.054	10.405	10.257	2.448	55.1	
UPM 0049-7516	44833770	52993310	141.1	221.6	7.7	7.5	16.132	13.622	11.855	10.558	10.008	9.724	3.064	29.8	
UPM 0050-8406	45673415	21181545	184.7	28.1	4.2	3.5	...	...	...	12.460	11.941	11.665	...	...	
UPM 0052-7124	47330607	66954257	226.8	54.8	9.0	9.1	16.185	14.764	13.558	12.199	11.642	11.360	2.565	95.3	
UPM 0055-8649	50082601	11435834	190.0	3.6	6.0	4.6	16.074	13.915	12.193	11.164	10.594	10.335	2.751	49.1	a
UPM 0106-6857	60014307	75757311	208.2	-231.6	8.2	8.1	16.704	14.988	14.288	13.229	12.673	12.515	1.759	[181.7]	
UPM 0109-7523	62854828	52560670	163.3	-80.0	3.6	6.6	17.846	15.536	13.984	12.662	12.070	11.892	2.874	91.2	
UPM 0111-7655B	64567429	47053087	182.5	35.6	4.9	5.0	18.581	16.585	15.107	13.369	12.772	12.531	3.216	109.9	c
UPM 0111-7655A	64749501	47075281	130.0	31.4	1.6	1.6	13.499	12.205	11.777	10.781	10.269	10.237	1.424	64.4	c, d, e
UPM 0116-7214	69103288	63920551	247.5	-77.0	8.7	8.3	16.481	14.783	13.992	13.300	12.745	12.651	1.483	[219.0]	a
UPM 0118-7606	70334783	49987168	177.9	-34.1	2.4	2.8	17.350	15.149	13.999	13.075	12.395	12.278	2.074	154.5	
UPM 0119-7347	71653364	58371207	222.9	28.3	8.7	8.7	17.291	15.254	13.531	12.177	11.624	11.376	3.077	70.0	
UPM 0128-4754	79755558	151547143	120.9	-188.5	7.3	7.0	15.375	13.287	11.314	10.210	9.640	9.384	3.077	28.0	f
UPM 0133-7503	83912414	53819904	101.6	-180.7	13.0	7.2	18.504	15.996	14.065	12.476	11.886	11.623	3.520	57.3	
UPM 0135-6359	86122021	93629302	183.4	-20.8	4.4	10.5	17.836	16.443	15.139	12.260	11.647	11.423	4.183	52.8	
UPM 0152-8815	101325332	6293882	193.7	-8.5	12.3	10.5	14.706	13.795	13.226	12.837	12.447	12.357	0.958	173.6	b
UPM 0157-7324	106019256	59755191	183.6	-39.7	2.7	2.7	16.972	15.144	14.468	13.599	12.931	12.849	1.545	[230.6]	a
UPM 0204-5012	112153869	143253073	164.2	97.5	7.5	4.9	16.042	15.107	13.986	11.073	10.552	10.474	4.034	35.7	
UPM 0216-5328	123095616	131482914	179.4	102.1	7.5	8.6	13.818	11.862	11.263	10.721	10.127	9.951	1.141	61.6	f
UPM 0233-5122	137727579	139047453	259.3	117.5	11.4	11.2	16.907	15.392	14.597	13.798	13.198	12.963	1.594	[234.4]	a
UPM 0245-8833A	148994471	5191128	174.6	59.1	5.7	5.8	17.617	16.231	...	11.828	11.188	10.958	4.403	34.5	c
UPM 0245-8833B	149064071	5197674	175.7	89.7	6.5	6.7	...	...	...	11.726	11.071	10.870	...	...	c, d
UPM 0320-4847B	180208650	148355200	208.7	93.3	13.1	12.5	18.877	16.817	15.849	14.740	14.276	14.179	2.077	396.9	c, d
UPM 0320-4847A	180270958	148347787	230.8	147.8	2.4	1.8	15.184	13.008	11.487	10.402	9.856	9.624	2.606	37.7	c, f
UPM 0342-5044	200622342	141302005	165.5	-95.8	16.9	11.6	...	12.651	10.850	10.259	9.607	9.376	2.392	36.5	
UPM 0350-5947	207350403	108760589	159.8	-161.7	8.5	15.4	18.166	15.461	14.618	11.923	11.380	11.139	3.538	46.8	
UPM 0352-7409	209621476	57009023	149.8	117.9	4.0	2.8	15.983	13.991	12.806	11.522	10.892	10.664	2.469	64.5	
UPM 0356-7246	212775775	62017326	108.8	143.5	4.5	6.3	16.730	14.913	13.075	11.703	11.059	10.844	3.210	53.1	
UPM 0418-6900	232848877	75566269	-227.1	-181.1	7.4	6.7	13.503	11.465	10.434	10.362	9.721	9.505	1.103	52.4	f
UPM 0422-5114	236677358	139530080	-162.2	-140.7	8.8	8.3	16.833	14.644	12.724	11.870	11.292	11.042	2.774	67.8	f
UPM 0424-6956	238195953	72180172	163.8	167.3	9.5	9.3	17.246	15.106	13.055	12.101	11.530	11.247	3.005	67.9	
UPM 0426-7849	239769264	40214583	76.8	163.5	3.7	3.8	16.767	15.569	14.214	11.418	10.732	10.572	4.151	37.0	
UPM 0435-8142	248223169	29825780	187.1	31.6	2.9	2.7	13.762	11.941	10.621	11.028	10.406	10.195	0.913	66.4	b
UPM 0437-7232	249681505	62832156	104.8	-167.1	2.8	2.8	18.041	14.183	16.621	12.016	11.365	11.131	2.167	63.8	
UPM 0443-5236	254948887	134592463	105.7	176.7	5.5	8.2	15.377	13.074	11.399	10.479	9.914	9.640	2.595	37.2	
UPM 0445-6544	257096346	87304149	44.6	180.0	10.0	8.2	14.420	12.835	11.824	11.819	11.202	11.025	1.016	107.8	b
UPM 0447-6445	259144878	90863676	116.5	159.1	4.0	4.0	15.524	13.123	12.514	11.705	11.063	10.906	1.418	94.7	
UPM 0450-4940	261002744	145179168	163.5	-171.0	6.5	7.2	14.913	12.696	10.703	10.194	9.593	9.368	2.502	35.2	
UPM 0457-4802	267813979	151048953	17.4	183.0	2.2	2.6	16.158	14.093	12.076	11.516	10.905	10.682	2.577	64.4	
UPM 0458-6741	268276278	80291179	83.7	171.0	2.2	2.2	13.851	12.481	11.923	10.275	9.692	9.502	2.206	37.7	
UPM 0459-6824	269511253	77743694	133.3	-126.8	9.4	9.6	16.915	14.914	13.406	12.577	11.963	11.699	2.337	111.7	
UPM 0510-4952	279040730	144454421	106.3	168.2	7.4	7.3	16.569	14.203	11.922	11.062	10.487	10.257	3.141	39.8	
UPM 0514-7456	283007084	54221478	-145.8	-151.0	3.7	3.3	16.945	15.205	14.128	12.800	12.226	12.059	2.405	134.2	
UPM 0514-4902	283498019	147437611	-86.8	-199.5	13.2	13.8	18.404	16.620	15.186	12.623	12.056	11.782	3.997	60.3	
UPM 0518-4934	286357991	145552843	15.9	-229.9	10.3	10.2	17.480	15.481	13.494	12.173	11.596	11.361	3.308	63.4	
UPM 0521-5227	289705231	135166103	118.5	188.5	9.2	8.8	16.471	14.343	12.654	11.384	10.771	10.520	2.959	47.9	
UPM 0530-5423	297516602	128202518	162.1	-84.6	2.9	2.9	16.901	14.944	14.172	13.686	13.098	13.000	1.258	[264.7]	a
UPM 0533-5210A	300341870	136155536	-80.5	180.7	3.4	3.3	16.348	13.641	12.161	11.350	10.762	10.512	2.291	58.2	c
UPM 0533-5210B	300345900	136148200	...	...	...	...	...	...	...	13.885	13.311	13.020	...	...	c, d
UPM 0537-4924	303746224	146154602	196.2	42.2	9.1	9.0	16.734	14.567	12.263	11.299	10.787	10.488	3.268	43.7	
UPM 0538-5313	304573280	132361506	244.6	90.0	7.4	7.2	16.220	14.231	12.810	12.202	11.640	11.450	2.029	114.2	
UPM 0546-8356	311935231	21813762	39.8	185.9	12.9	12.9	16.962	15.380	13.325	12.060	11.498	11.219	3.320	65.3	
UPM 0546-7124	312294377	66931727	-55.1	-176.9	6.1	6.2	16.395	15.073	13.380	11.792	11.285	11.011	3.281	63.8	
UPM 0550-4839	315022816	148809418	55.3	283.7	13.2	11.2	14.508	12.328	10.676	10.576	10.015	9.769	1.752	54.7	
UPM 0550-5557	315113926	122546698	-14.8	208.1	16.0	13.7	18.420	16.668	15.148	12.467	11.897	11.602	4.201	51.7	
UPM 0552-5648	317640102	119472712	4.3	203.5	12.6	13.3	18.140	16.090	14.761	13.133	12.574	12.362	2.957	114.7	
UPM 0553-5014	317828071	143105615	-52.7	-180.0	10.9	10.5	16.940	14.790	12.751	11.813	11.335	11.017	2.977	63.3	

TABLE 2—*Continued*

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 0554-5009	319442059	143452591	45.4	214.7	10.6	9.7	16.264	14.063	11.271	10.784	10.199	9.890	3.279	33.9	
UPM 0555-4932	319998070	145629559	-112.4	213.2	12.6	11.6	17.018	14.941	12.272	11.646	11.058	10.703	3.295	49.1	
UPM 0556-7215	321269817	63842657	58.9	176.9	1.4	1.3	12.742	10.698	9.700	9.268	8.590	8.380	1.430	30.5	
UPM 0558-5358	322864429	129701481	110.3	-200.4	10.9	10.4	16.171	14.204	12.863	11.834	11.328	11.103	2.370	86.4	
UPM 0559-5225	323598169	135295015	120.7	152.6	4.5	4.4	14.532	12.000	10.287	9.628	8.951	8.703	2.372	24.9	
UPM 0600-4707	324124205	154347926	3.0	223.7	8.9	8.7	16.447	14.358	12.375	11.194	10.635	10.374	3.164	42.5	
UPM 0602-6209	326452097	100243766	-57.4	171.1	1.9	1.9	16.507	14.476	12.695	11.805	11.198	10.993	2.671	71.0	
UPM 0604-5054	327760875	140727784	179.0	32.7	2.6	2.6	14.600	12.440	10.549	10.265	9.659	9.444	2.175	41.6	
UPM 0606-5342	329823432	130660944	141.7	125.4	13.6	11.9	17.659	15.758	14.102	13.026	12.523	12.269	2.732	129.6	
UPM 0606-6524	329873509	88555612	-27.1	182.5	7.3	7.4	17.434	15.078	13.889	12.288	11.747	11.522	2.790	78.8	
UPM 0606-4907	330128370	147129405	-85.7	165.2	16.3	15.9	17.839	15.654	13.470	12.532	11.980	11.747	3.122	82.3	
UPM 0607-5751	330761393	115683690	-96.8	198.5	11.2	11.2	17.343	15.150	13.871	13.063	12.444	12.293	2.087	157.6	
UPM 0608-5301A	331826617	133116470	-131.1	208.6	12.2	10.8	14.341	12.234	10.865	10.046	9.431	9.217	2.188	37.1	c
UPM 0612-5326	335637420	131623962	-167.4	-72.7	3.4	2.2	16.044	13.982	12.129	11.044	10.486	10.207	2.938	43.6	
UPM 0619-4901	341823528	147490465	109.8	221.9	7.2	7.0	14.297	12.153	10.008	9.639	9.010	8.813	2.514	27.5	
UPM 0621-6111	343586117	103726637	11.4	204.6	5.8	5.3	16.108	14.256	12.028	10.427	9.788	9.534	3.829	21.8	
UPM 0632-6656	353475538	82985482	-29.6	183.3	2.2	2.2	14.698	12.495	10.749	10.165	9.563	9.315	2.330	36.6	
UPM 0636-6639	356884852	84035552	-4.4	183.9	3.4	3.3	16.255	14.246	11.945	11.030	10.411	10.135	3.216	38.2	
UPM 0636-7412	357254645	56842839	-163.8	92.9	5.9	3.9	16.355	14.629	13.026	12.345	11.740	11.537	2.284	112.5	
UPM 0638-5827	358555223	113559044	200.5	-149.5	10.9	11.0	16.676	15.164	14.461	13.562	13.096	12.873	1.602	[228.9]	a
UPM 0639-6849	359685140	76237418	-40.9	182.9	8.3	8.1	16.409	14.289	12.750	11.592	11.026	10.812	2.697	63.0	
UPM 0642-5012	362591504	143221516	-20.5	239.7	7.3	7.2	15.084	13.703	13.051	12.763	12.317	12.141	0.940	159.9	b
UPM 0644-7317	363638069	60127410	-10.7	183.8	3.7	4.4	17.367	15.430	13.466	11.932	11.319	11.023	3.498	49.0	
UPM 0646-5452	365990094	126421377	10.4	-216.8	22.1	49.6	15.711	13.616	11.583	10.954	10.325	10.078	2.662	46.4	
UPM 0649-5354	368443271	129948539	69.8	187.0	10.0	14.3	15.012	12.792	11.410	10.767	10.160	9.939	2.025	54.2	
UPM 0659-7648	377784601	47493923	33.0	185.0	6.8	6.8	17.668	15.759	13.416	11.619	10.982	10.658	4.140	31.2	
UPM 0711-5513	387967786	125160489	-96.5	152.0	3.8	4.1	15.809	13.727	11.903	11.249	10.650	10.391	2.478	57.9	
UPM 0713-5836	390581091	113012021	-35.9	179.8	2.8	2.8	16.176	14.017	12.046	11.214	10.605	10.354	2.803	48.8	
UPM 0720-5237	396383525	134568885	113.9	-148.2	4.8	4.3	17.373	15.353	14.468	13.853	13.216	13.056	1.500	[261.7]	a
UPM 0730-7501	405560351	53890475	-49.5	197.9	27.9	11.2	17.706	16.172	14.101	12.401	11.822	11.539	3.771	61.3	
UPM 0731-6642	406499377	83824278	-130.0	127.8	2.5	2.4	12.675	10.861	10.080	9.856	9.195	9.011	1.005	41.9	b
UPM 0731-7942	406797553	37071878	-85.3	164.1	7.2	9.1	14.558	12.750	12.113	11.162	10.523	10.366	1.588	64.9	
UPM 0734-7509	409044755	53455762	-54.3	192.3	13.2	14.5	17.118	14.957	13.044	12.194	11.614	11.305	2.763	76.6	
UPM 0739-8840	413322282	4758933	-114.4	254.0	10.6	10.0	16.884	14.766	...	11.015	10.452	10.159	3.751	26.7	
UPM 0740-5408	414078074	129084313	-168.2	-76.0	8.3	8.5	13.856	12.626	11.970	11.557	11.021	10.927	1.069	89.1	f
UPM 0740-5207A	414137868	136369560	-37.7	-221.5	10.4	9.6	17.906	16.477	14.997	11.898	11.292	11.058	4.579	38.9	c
UPM 0740-5207B	414151948	136382302	6.6	-240.0	13.8	13.8	18.475	18.193	17.723	...	...	...	...	...	c,d,g
UPM 0747-6428	421129780	91870083	29.4	178.6	2.5	1.5	13.799	12.892	12.476	11.735	11.361	11.290	1.157	104.9	b
UPM 0759-6658	431215147	82902895	5.2	191.4	11.6	12.5	18.734	16.654	15.144	12.797	12.223	11.967	3.857	64.1	
UPM 0800-7205	432654941	64470732	-24.8	248.1	9.0	9.0	16.397	14.513	12.843	11.533	10.958	10.703	2.980	55.0	
UPM 0802-4926	434306031	146007969	-196.5	-35.5	10.6	11.4	15.982	14.237	12.336	11.304	10.766	10.531	2.933	55.3	
UPM 0803-4955	435307518	144246351	-118.6	166.7	3.1	3.1	14.957	14.873	12.586	12.535	11.880	11.774	2.338	113.3	
UPM 0806-5903	437482203	111417097	-85.0	163.4	5.8	5.7	16.791	14.877	13.182	11.872	11.273	11.018	3.005	62.1	
UPM 0806-5409	437729739	129055037	-221.3	255.4	9.8	12.6	17.265	15.305	13.290	12.030	11.507	11.211	3.275	61.4	
UPM 0807-6913	438748524	74797001	157.4	107.6	7.9	6.0	13.404	11.430	10.211	9.541	8.878	8.692	1.889	32.8	f
UPM 0811-6952	442531801	72439872	19.1	-197.6	10.7	9.7	15.543	13.944	12.225	11.181	10.610	10.349	2.763	55.2	
UPM 0815-4941	445774778	145093080	-149.8	129.7	1.3	1.3	13.306	11.518	10.737	9.978	9.406	9.237	1.540	44.5	
UPM 0823-4700	453122494	154795726	184.3	-18.9	4.3	4.3	13.960	11.819	10.807	10.855	10.213	10.058	0.964	68.2	b
UPM 0834-4832	463092742	149223005	-40.8	178.8	1.9	1.8	15.441	13.279	11.683	11.452	10.788	10.558	1.827	76.6	
UPM 0835-8332	463882202	23233252	-74.5	169.3	2.9	6.9	14.641	12.652	11.481	10.870	10.329	10.130	1.782	66.7	
UPM 0835-6716	463888892	81802666	-146.1	194.8	7.9	7.5	18.175	16.354	14.711	11.834	11.286	11.017	4.520	35.1	
UPM 0835-7247	464095507	61975334	-61.3	170.1	7.2	2.2	17.097	15.168	13.609	12.364	11.820	11.586	2.804	89.5	
UPM 0835-6418	464128846	92464726	-91.0	165.1	7.9	8.0	16.860	15.270	14.489	13.616	12.988	12.838	1.654	[217.3]	a
UPM 0835-6018C	464201386	106885496	-184.6	-17.7	8.9	11.2	...	15.671	13.904	12.162	11.608	11.318	3.509	50.3	c,e
UPM 0837-6435B	465804750	91491299	-29.6	158.4	5.8	6.0	18.701	16.753	14.850	13.323	12.829	12.561	3.430	106.6	c,d,e
UPM 0837-6435A	465826276	91489399	-46.7	175.2	4.2	3.1	18.204	16.568	14.644	12.203	11.658	11.455	4.365	46.0	c
UPM 0838-4935	466900627	145482276	-191.0	-39.4	5.9	6.0	15.071	13.044	11.663	11.255	10.658	10.491	1.789	77.9	
UPM 0846-7345B	473694134	58464369	-125.4	112.9	3.0	3.3	15.708	13.930	12.802	11.789	11.205	10.965	2.141	88.4	c,d,e
UPM 0846-7345A	473701026	58488516	-129.3	127.6	2.9	3.1	15.702	13.617	12.348	11.330	10.710	10.430	2.287	61.6	c
UPM 0847-5952	474714326	108445130	-76.0	164.0	4.4	3.2	17.254	15.190	13.486	12.638	12.063	11.818	2.552	108.7	
UPM 0847-6114	475060646	103508456	-139.5	113.8	6.7	6.4	17.554	15.670	13.833	13.069	12.548	12.297	2.601	140.6	
UPM 0849-5624	476802766	120928221	183.9	-34.2	17.1	5.4	17.324	15.253	13.668	12.312	11.730	11.476	2.941	76.2	
UPM 0850-5609	477752730	121836946	-89.3	161.7	2.2	8.1	17.705	16.336	14.428	11.673	11.054	10.899	4.663	34.1	f
UPM 0853-7257	480561006	61351874	-163.1	85.0	7.7	6.9	16.464	14.521	12.993	11.935	11.315	11.091	2.586	76.8	

TABLE 2—*Continued*

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 0855-7628	481940284	48709869	-169.7	64.5	5.7	7.8	17.305	15.711	14.140	12.948	12.418	12.193	2.763	130.1	
UPM 0856-7737	483109280	44538257	-80.3	233.0	3.4	3.4	16.221	15.091	13.332	11.754	11.121	10.873	3.337	59.1	
UPM 0857-5644	484130611	119756593	-62.0	-187.2	3.5	3.5	15.015	13.200	12.269	11.960	11.492	11.223	1.240	117.2	
UPM 0900-7548	486663656	51069120	-269.7	63.8	16.1	10.5	16.230	15.592	13.725	12.571	12.029	11.820	3.021	116.2	
UPM 0901-6526	487375530	88399668	-68.4	196.4	6.7	6.7	16.269	14.219	11.471	10.140	9.589	9.282	4.079	18.0	
UPM 0904-5040	489923010	141595163	-148.7	151.6	11.4	16.0	18.151	16.823	14.978	13.008	12.436	12.204	3.815	86.3	
UPM 0904-7300	490461535	61175505	-139.5	115.7	2.0	2.0	16.181	14.199	12.448	11.242	10.623	10.367	2.957	46.2	
UPM 0907-7337	492965065	58937692	-128.1	139.1	7.1	7.0	14.938	12.962	11.817	11.052	10.509	10.264	1.910	68.2	
UPM 0908-5735	493590843	116658425	-128.8	178.3	14.0	8.7	15.670	15.333	13.381	12.791	12.208	11.987	2.542	118.8	
UPM 0912-5501	497648346	125899556	-181.5	88.6	4.0	4.2	15.179	14.259	11.439	11.944	11.395	11.177	2.315	77.1	b
UPM 0913-6058	497794860	104510459	23.8	-189.1	2.6	2.3	13.487	12.365	10.861	11.696	11.171	10.908	0.669	94.0	b
UPM 0913-6333	497821252	95208293	-176.3	-65.2	7.4	7.1	16.840	15.043	14.283	13.665	13.160	12.915	1.378	[251.0]	a
UPM 0913-5405	497914131	129246075	129.3	-163.0	9.6	9.6	16.199	15.920	12.810	12.957	12.365	12.123	2.963	98.0	b
UPM 0915-5930	500081336	109741135	101.1	195.8	10.8	10.7	...	15.704	...	14.063	13.562	13.349	1.641	[313.3]	a ,b
UPM 0915-5515	500370580	125053511	107.8	-182.2	6.5	6.8	15.996	14.231	11.880	11.645	10.957	10.736	2.586	68.9	
UPM 0917-4707	501408590	154348882	-175.8	-171.2	3.6	3.0	15.396	13.501	11.295	10.304	9.806	9.544	3.197	31.0	f
UPM 0919-6205	503552308	100495615	204.0	52.6	7.1	7.0	15.583	13.720	11.948	11.703	11.070	10.854	2.017	87.2	
UPM 0924-7319	507837850	60043020	-173.0	76.6	5.2	5.3	18.285	16.869	15.047	12.394	11.906	11.604	4.475	50.5	
UPM 0927-4925	510592049	146043500	-226.1	68.0	7.0	7.0	19.157	19.607	20.120	...	...	...	...	...	d ,g
UPM 0928-5442A	511346324	127068710	-129.4	137.3	6.3	6.1	14.539	12.199	10.397	10.702	10.072	9.849	1.497	57.1	c
UPM 0928-5442B	511392300	127069700	-91.0	147.9	7.5	7.8	20.410	18.880	16.134	14.150	13.607	13.295	4.730	93.0	c ,d ,e ,h
UPM 0928-4736	511977850	152615832	-151.2	132.9	4.0	6.7	18.129	16.786	14.890	12.509	11.889	11.664	4.277	55.1	
UPM 0931-5214	514422292	135948112	-182.9	-46.6	3.4	4.3	14.343	12.375	11.129	11.335	10.735	10.499	1.040	77.0	b
UPM 0934-8226	516828159	27228505	-134.3	124.9	3.5	3.4	17.326	15.196	13.416	12.173	11.634	11.357	3.023	70.1	
UPM 0946-5721	527727964	117517068	194.4	-6.3	12.3	7.3	15.794	13.902	12.640	12.623	11.989	11.810	1.279	[150.9]	a
UPM 0948-5807	529927201	114732425	-249.0	161.6	12.8	12.8	16.700	14.743	12.547	12.154	11.639	11.406	2.589	93.8	
UPM 0948-4840	530079096	148753388	-172.0	55.8	2.9	5.1	14.042	12.832	12.555	12.466	12.030	11.933	0.366	150.0	b
UPM 0952-5004	532988430	143714640	144.1	122.4	4.0	4.0	16.780	13.537	13.458	12.811	12.163	11.957	0.726	144.6	
UPM 0952-5404	533479000	129344116	33.5	-262.1	9.7	9.5	14.935	12.574	10.116	9.993	9.324	9.098	2.581	29.0	
UPM 0959-6511	539778440	89339446	-229.7	47.3	9.2	9.3	16.281	15.042	13.103	11.857	11.317	11.117	3.185	72.6	
UPM 1001-7450	540996018	54585231	-49.3	175.2	3.7	4.2	17.005	15.147	12.911	11.181	10.596	10.296	3.966	29.3	
UPM 1002-5346	542138816	130406875	-211.8	85.4	14.4	15.3	17.471	15.616	13.425	12.588	12.082	11.881	3.028	100.0	
UPM 1004-7143	543907730	65807409	-154.7	107.0	1.5	3.0	13.698	11.777	10.860	9.849	9.238	9.066	1.928	38.7	
UPM 1007-5654	546325232	119102081	-178.0	66.5	4.5	4.6	17.079	15.025	13.362	12.746	12.177	11.925	2.279	128.2	
UPM 1015-6848	554027327	76286632	-183.1	40.0	7.4	7.6	16.784	14.899	13.950	12.921	12.309	12.085	1.978	152.7	
UPM 1016-5354	554981277	129915776	153.2	-120.3	4.5	4.4	16.038	14.239	13.999	13.325	12.707	12.543	0.914	165.2	b
UPM 1016-8230	555178676	26962130	-242.7	49.6	12.4	10.6	17.666	15.813	14.179	12.622	12.006	11.790	3.191	81.9	
UPM 1018-5540	556901250	123585233	-231.3	106.5	7.2	6.9	15.108	12.714	10.596	10.142	9.605	9.313	2.572	32.7	f
UPM 1020-5039	558143896	141657641	-273.1	156.0	5.5	5.5	15.783	13.462	11.592	10.903	10.321	10.093	2.559	47.0	
UPM 1024-5014	561747625	143139523	-254.2	35.8	8.2	7.6	17.315	15.265	13.224	12.364	11.820	11.647	2.901	89.7	
UPM 1025-6853	563154280	76012205	-232.9	-54.0	8.2	7.7	16.338	14.232	12.254	10.835	10.243	9.967	3.397	30.8	
UPM 1026-5220	563859528	135555177	-142.7	145.1	18.7	18.7	15.783	13.573	11.631	10.719	10.224	9.928	2.854	39.7	
UPM 1029-4717	566272965	153747533	-191.1	78.1	31.5	9.0	18.142	16.158	14.562	13.301	12.824	12.561	2.857	137.8	
UPM 1029-5833	566322949	113212773	-140.3	145.3	4.5	4.5	15.877	13.186	11.789	11.224	10.638	10.395	1.962	63.3	
UPM 1030-5522	567848867	124674624	-170.2	72.1	13.8	12.0	16.693	14.689	12.425	11.484	10.849	10.609	3.205	47.6	
UPM 1033-5703	570262042	118605552	-199.0	-93.6	11.3	11.5	17.406	15.678	13.149	12.258	11.753	11.469	3.420	72.1	
UPM 1034-5524	571158773	124522000	-197.0	-21.6	6.0	6.0	14.270	12.104	10.735	10.789	10.171	10.007	1.315	64.3	b
UPM 1037-7107	574194223	67973139	-209.1	-.1	8.2	8.4	17.147	15.246	13.842	12.789	12.274	12.049	2.457	130.5	
UPM 1039-6147	575499606	101537935	-197.4	64.0	7.1	7.2	16.967	14.621	12.133	11.414	10.764	10.531	3.207	44.0	
UPM 1039-4757	575999373	151362747	-172.1	67.6	6.3	4.7	18.025	15.870	13.756	12.701	12.107	11.823	3.169	81.3	
UPM 1040-5621	576632314	121134540	-173.7	61.3	13.3	13.3	16.539	15.734	14.579	13.989	13.397	13.205	1.745	[259.3]	a ,h
UPM 1040-5728A	576899309	117072931	-151.4	131.1	5.1	5.9	17.195	15.395	13.254	12.448	11.828	11.607	2.947	88.8	c
UPM 1040-5728B	576912600	117071399	-224.2	138.9	5.2	5.6	18.382	16.178	13.855	13.298	12.732	12.435	2.880	164.7	b ,c ,d ,h
UPM 1041-5743	576937649	116163103	-162.2	140.3	6.8	6.9	16.863	14.599	12.833	11.986	11.468	11.254	2.613	80.4	
UPM 1044-7053A	580394596	68773915	-217.5	17.6	7.3	7.4	16.376	14.437	12.659	11.564	10.952	10.724	2.873	57.8	c
UPM 1044-7053B	580396649	68739099	-217.5	36.5	8.4	8.5	20.085	17.841	15.418	13.843	13.250	12.957	3.998	92.3	c ,d
UPM 1049-5024	584145300	142551809	-177.3	-56.6	4.8	4.4	17.250	15.168	13.358	11.933	11.301	11.067	3.235	54.6	
UPM 1051-6453	586032816	90413577	-182.4	85.1	7.4	6.8	16.646	15.014	13.501	12.117	11.566	11.333	2.897	80.9	
UPM 1053-6848	587914658	76268649	100.5	167.3	5.2	5.3	15.903	14.550	13.447	13.255	12.751	12.637	1.295	[218.7]	a ,b
UPM 1054-5945	588842452	108899458	-244.9	52.1	8.8	9.4	17.515	15.478	13.363	12.059	11.462	11.212	3.419	55.7	
UPM 1055-5934	590266470	109511211	-217.8	99.6	7.3	7.3	17.227	14.861	12.711	11.615	10.974	10.715	3.246	44.7	
UPM 1056-5750	590521836	115757473	-194.4	121.9	6.9	7.4	17.175	14.966	12.873	11.339	10.727	10.450	3.627	33.7	
UPM 1057-5048	591643375	141061116	-116.6	164.1	3.8	3.8	16.024	12.974	11.947	11.375	10.766	10.567	1.599	72.8	
UPM 1058-5516	592209732	125011151	-57.8	204.2	4.5	4.5	...	...	...	13.132	12.615	12.357	...	...	

TABLE 2—*Continued*

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 1100-6615	594036873	85493226	181.0	-6.1	40.0	7.8	19.612	14.988	17.336	13.231	12.665	12.383	1.757	97.0	
UPM 1101-6112	595586097	103635531	-184.4	62.3	6.7	7.2	16.499	14.183	12.383	11.977	11.450	11.232	2.206	92.8	
UPM 1101-6918	595737805	74472734	-170.1	78.2	9.4	5.4	15.700	15.057	13.623	13.080	12.398	12.229	1.977	153.7	
UPM 1104-6232	598106935	98845495	-207.8	-58.5	6.0	6.2	16.423	14.086	11.484	10.256	9.677	9.357	3.830	19.4	
UPM 1104-7107A	598372077	67942248	-197.3	-83.8	7.7	7.7	17.740	16.102	14.741	12.287	11.770	11.545	3.815	60.9	c
UPM 1104-7107B	598388051	67951710	20.3	23.1	3.5	5.9	15.524	13.595	15.033	12.855	12.444	12.183	0.740	44.6	b ,c ,d ,e
UPM 1105-5825A	598956034	113681441	-176.1	51.5	4.2	4.2	16.916	...	13.713	10.298	9.711	9.496	...	15.2	c ,h
UPM 1105-5825B	599009180	113697850	-141.8	56.9	12.4	6.6	17.721	15.259	13.109	11.615	11.070	10.796	3.644	38.4	c ,d ,e
UPM 1107-7032	600625006	70069523	-192.8	134.6	4.8	3.5	15.169	13.238	11.793	11.129	10.513	10.258	2.109	63.5	
UPM 1109-8518	602953600	16907251	-189.7	35.3	3.1	3.1	16.926	14.899	13.318	11.652	11.113	10.801	3.247	49.0	
UPM 1111-6653	604096236	83206908	-182.5	13.6	7.1	6.9	17.073	15.007	13.596	12.187	11.629	11.392	2.820	77.9	
UPM 1111-6014	604347021	107105218	-195.7	52.2	5.3	5.3	17.103	14.488	11.285	12.775	12.171	11.959	1.713	121.4	
UPM 1111-5903	604421714	111381636	-144.2	109.1	3.9	16.3	14.777	12.424	10.606	11.144	10.541	10.293	1.280	72.3	
UPM 1112-4834	605254455	149144350	-245.3	106.6	10.1	10.0	18.765	16.634	14.154	11.953	11.352	11.035	4.681	28.8	
UPM 1112-5246	605337027	134015761	-33.2	-181.6	3.7	3.3	17.313	14.887	13.078	12.705	12.109	11.844	2.182	119.1	
UPM 1112-5551	605392402	122918291	-212.5	67.0	7.9	6.0	14.114	11.879	10.866	11.008	10.356	10.182	0.871	71.0	b
UPM 1113-4908	605758353	147100509	-196.7	32.0	6.8	6.8	15.399	14.112	13.662	12.671	12.164	12.048	1.441	[147.3]	a
UPM 1113-5546	605999181	123199403	-174.7	56.3	3.2	3.1	15.809	13.571	11.484	11.180	10.589	10.304	2.391	56.2	
UPM 1120-7753	612430190	43574189	-178.5	38.5	3.0	3.4	16.632	14.920	13.758	12.063	11.388	11.134	2.857	70.1	
UPM 1122-4916	613897272	146609505	-184.2	34.4	6.1	9.6	17.581	15.504	13.135	12.255	11.714	11.483	3.249	71.7	
UPM 1122-7946	614301816	36791042	-181.4	35.5	2.8	3.0	15.309	13.424	12.158	11.101	10.526	10.224	2.323	57.7	
UPM 1123-4839	615142692	148852167	-181.3	83.0	3.7	3.7	...	...	...	11.281	10.698	10.362	...	...	
UPM 1125-5127	616862846	138732194	170.6	147.4	4.5	4.5	17.136	13.432	13.395	12.728	12.159	11.930	0.704	129.5	
UPM 1134-6455	625214057	90272065	-186.6	2.3	4.5	10.5	14.941	12.946	11.645	10.527	9.953	9.681	2.419	42.6	
UPM 1135-5554	625712836	122753701	-200.8	-116.8	18.5	9.4	15.127	13.022	11.497	11.248	10.698	10.497	1.774	77.7	
UPM 1136-5358A	626495784	129716980	-215.3	-74.1	6.9	6.7	14.772	12.473	10.510	10.206	9.574	9.302	2.267	36.3	c ,f
UPM 1136-5358B	626496300	129732900	-247.7	-69.6	6.6	6.4	19.322	18.182	17.904	...	...	...	...	...	c ,d ,g ,h
UPM 1142-6440	632248846	91165839	-183.4	-205.1	32.2	16.8	16.067	14.081	11.418	10.393	9.846	9.481	3.688	23.7	
UPM 1142-6344	632535830	94528424	-259.0	40.0	7.5	7.3	15.965	13.490	10.971	11.583	10.985	10.800	1.907	72.0	
UPM 1143-5324	632832624	131734543	-188.4	120.7	2.9	18.4	13.722	11.666	10.146	10.058	9.463	9.242	1.608	45.1	f
UPM 1143-4836	633486209	149024797	-119.3	165.6	3.1	3.1	15.959	13.889	12.573	12.733	12.228	12.000	1.156	[155.7]	a ,b
UPM 1144-4923	633657394	146191433	-277.6	-16.1	8.4	8.1	15.894	13.774	12.050	11.847	11.229	11.032	1.927	93.9	
UPM 1144-5557	633896464	122551085	-245.2	37.0	7.1	7.1	17.383	15.306	13.222	12.097	11.538	11.266	3.209	63.3	
UPM 1147-4733	636701757	152783368	-206.3	126.8	11.3	11.3	17.985	15.817	13.616	12.055	11.537	11.254	3.762	48.0	
UPM 1149-7948	638766897	36660917	-203.2	38.5	10.4	10.4	16.103	15.183	14.614	13.205	12.729	12.637	1.978	159.8	f
UPM 1152-4906	641000199	147194325	190.9	10.2	8.4	8.3	...	...	...	11.818	11.247	10.996	...	...	
UPM 1157-4902	645382627	147472855	-182.0	-5.2	5.0	6.4	17.658	15.389	13.655	12.831	12.271	12.048	2.558	116.8	
UPM 1158-4740	646653103	152372902	-188.8	35.4	6.9	7.9	17.845	16.206	14.692	12.675	12.074	11.872	3.531	77.2	
UPM 1200-6048	648207506	105083449	-179.9	32.5	3.6	15.0	14.999	12.193	10.693	11.014	10.469	10.258	1.179	70.1	f
UPM 1201-6030	648904878	106182272	-184.4	-14.8	6.3	6.3	17.271	15.315	12.937	12.251	11.654	11.423	3.064	76.7	
UPM 1203-4910B	651090352	146962333	-177.1	-40.5	4.2	4.2	15.446	13.202	11.735	11.692	11.124	10.914	1.510	97.5	c
UPM 1204-7506	651612980	53600108	-265.4	48.9	6.7	6.6	15.549	13.867	12.272	10.779	10.221	9.999	3.088	39.8	f
UPM 1208-6352	655915161	94051538	-180.8	11.6	3.9	3.9	12.899	10.962	10.047	11.126	10.510	10.283	-0.164	81.3	b ,h
UPM 1210-5144	657807554	137758940	-175.3	64.4	7.0	10.8	12.323	10.599	9.736	10.203	9.530	9.365	0.396	55.3	b
UPM 1211-5740	658107210	116377531	-72.8	167.5	10.9	8.5	17.816	16.003	14.320	13.537	12.989	12.756	2.466	183.9	
UPM 1211-4738	658674798	152461987	-186.6	18.1	2.8	2.8	17.353	15.654	14.772	13.855	13.243	13.044	1.799	[237.7]	a
UPM 1218-5642	664279147	119833488	-181.2	-13.0	8.0	7.9	15.224	13.229	11.622	10.975	10.407	10.178	2.254	58.6	
UPM 1219-5935	665312081	109493550	-182.5	139.5	4.2	4.1	16.132	15.777	13.703	12.731	12.174	11.938	3.046	93.9	
UPM 1219-5639	665642490	120010019	-214.6	8.3	7.1	7.0	17.522	15.398	14.005	11.404	10.748	10.520	3.994	31.0	
UPM 1221-5118	667250601	139300531	-239.0	-102.7	8.5	9.0	16.943	15.688	13.803	12.740	12.240	12.037	2.948	123.3	
UPM 1221-5305	667280397	132879517	181.8	-132.5	3.6	3.6	14.393	12.853	11.881	12.836	12.249	12.091	0.017	188.7	b ,h
UPM 1224-5429	669796204	127850432	-181.6	7.1	4.1	4.1	16.525	14.619	13.884	12.922	12.232	12.096	1.697	164.0	
UPM 1224-5909	669916109	111047246	-194.8	-52.8	3.4	3.4	14.920	13.632	11.792	11.702	11.073	10.887	1.930	87.2	
UPM 1227-6342	672319589	94676890	174.5	-44.9	4.6	12.5	16.333	14.224	12.635	12.742	12.210	12.039	1.482	161.6	
UPM 1228-5146	673673311	137589485	-190.6	-17.4	8.3	5.3	17.393	15.609	13.787	12.722	12.165	11.925	2.887	105.2	
UPM 1229-5139	674128500	138032073	-239.8	-122.1	7.4	7.3	13.836	13.582	13.083	12.724	12.372	12.235	0.858	165.5	b
UPM 1229-6033	674141823	105973539	-183.9	2.6	7.0	7.1	16.974	14.994	13.107	12.440	11.968	11.709	2.554	108.9	
UPM 1230-5736B	675249073	116560461	-243.0	-29.3	6.9	6.5	14.928	12.828	10.998	9.694	9.033	8.785	3.134	19.8	c ,f
UPM 1230-5736A	675783245	116623954	-227.6	-66.5	6.8	6.5	13.794	12.035	10.550	9.348	8.712	8.445	2.687	22.2	c ,f
UPM 1233-5438	678078870	127263281	-67.0	173.0	3.8	3.6	15.403	13.583	12.441	11.565	10.990	10.792	2.018	85.3	
UPM 1239-7327	683401087	59573302	-180.1	-29.1	3.0	3.0	16.017	...	10.602	10.963	10.328	10.089	...	34.6	b ,h
UPM 1239-6228	683531021	99084175	212.3	-155.5	8.5	9.1	15.513	15.123	12.290	12.025	11.419	11.185	3.098	78.1	
UPM 1240-5637	684685297	120146483	-245.8	-139.0	6.9	6.6	14.348	13.818	12.542	11.489	10.932	10.712	2.329	66.0	
UPM 1243-6904	687517359	75354839	-198.3	-76.6	10.6	12.6	17.311	15.316	13.542	12.819	12.303	12.038	2.497	127.2	

TABLE 2—*Continued*

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 1248-6018	691205255	106888292	187.3	4.1	20.9	13.0	15.923	13.444	11.840	11.311	10.782	10.503	2.133	65.6	
UPM 1248-6825	691899930	77658523	-185.0	-39.5	12.1	13.9	14.313	12.883	13.164	11.350	10.656	10.528	1.533	55.7	
UPM 1253-5924	696374392	110140798	-177.5	34.4	7.9	3.1	16.438	14.707	12.458	11.271	10.701	10.479	3.436	43.4	
UPM 1255-6915	697926133	74668638	-169.2	-109.2	14.1	5.8	15.934	13.804	11.864	10.907	10.350	10.098	2.897	42.2	
UPM 1255-5654	698007911	119128301	268.5	-2.5	13.5	13.7	...	16.078	14.497	13.044	12.512	12.296	3.034	100.8	
UPM 1255-6817	698247493	78148828	-189.8	-34.4	8.6	7.9	16.149	14.011	12.529	11.674	11.108	10.880	2.337	75.9	
UPM 1257-5107	699318268	139935108	-167.8	-69.7	7.7	3.3	18.006	16.101	13.909	12.484	11.923	11.683	3.617	66.0	
UPM 1259-5144	701235466	137713698	-185.2	1.9	3.2	3.9	17.695	15.716	13.851	12.237	11.649	11.383	3.479	58.2	
UPM 1308-5535	709469852	123890378	-213.0	-9.5	7.5	7.9	16.138	14.372	12.622	11.536	10.960	10.704	2.836	60.8	
UPM 1308-7437	710077137	55354493	-131.6	-161.3	9.3	7.5	16.086	14.421	12.251	11.514	10.905	10.627	2.907	59.1	
UPM 1309-5339	710289427	130807194	-187.7	-9.1	5.2	7.3	17.244	15.525	13.484	12.040	11.427	11.126	3.485	54.7	
UPM 1312-5933	712889351	109595597	-223.2	-40.8	7.1	7.4	15.749	14.358	11.945	11.061	10.462	10.186	3.297	43.9	
UPM 1317-5100	717471129	140352770	-137.6	117.9	4.3	4.2	17.484	16.767	15.525	13.578	13.062	12.767	3.189	149.2	
UPM 1318-6705	718242602	82452844	-196.7	-57.2	8.6	8.7	17.162	15.557	14.570	13.880	13.363	13.041	1.677	[250.1]	a
UPM 1322-5730	721872886	116945756	-214.6	-67.6	6.5	6.3	15.574	13.935	12.350	11.266	10.699	10.455	2.669	59.6	
UPM 1324-7123	724317780	66983446	-188.8	14.7	5.9	3.4	16.176	14.167	12.888	11.975	11.342	11.166	2.192	92.2	
UPM 1325-8321	724631438	23929798	-105.5	159.4	2.4	2.8	15.209	13.416	11.780	10.794	10.149	9.925	2.622	45.5	
UPM 1330-5844	729060131	112556039	-190.1	22.8	6.3	6.1	15.543	13.370	12.336	11.118	10.468	10.270	2.252	56.7	
UPM 1332-7421	731048730	56335255	175.9	50.5	47.8	45.3	14.290	12.439	10.758	10.057	9.483	9.229	2.382	36.9	f
UPM 1335-5708	734150978	118269665	-225.3	29.0	13.6	12.7	18.565	17.027	15.200	12.487	11.866	11.592	4.540	46.6	
UPM 1339-7507	737590334	53557535	-177.7	-48.5	11.2	14.3	18.288	16.752	14.841	12.737	12.205	11.930	4.015	66.7	
UPM 1340-6431	738068289	91682046	-179.2	-44.8	10.0	10.0	14.464	13.006	12.265	10.686	10.098	9.936	2.320	50.7	f ,h
UPM 1344-6829	741720593	77453474	-256.9	-180.2	6.8	7.6	17.635	16.274	14.268	11.780	11.185	10.941	4.494	36.3	
UPM 1346-6135	743664758	102274414	-199.8	-61.5	8.2	7.1	16.859	14.674	13.054	11.999	11.423	11.173	2.675	73.9	
UPM 1354-7121	751408498	67092222	-165.0	-132.7	6.5	6.8	12.598	10.665	8.750	8.549	7.920	7.672	2.116	19.3	
UPM 1401-6837	757371795	76964116	-174.5	-56.7	8.8	13.0	16.977	15.882	13.535	12.571	11.991	11.744	3.311	96.0	
UPM 1401-6405B	757530750	93309800	-185.2	-149.3	5.8	5.7	19.027	17.453	15.687	13.273	12.699	12.398	4.180	76.3	c ,d
UPM 1401-6405A	757555362	93281664	-172.2	-140.9	7.1	7.0	15.536	13.909	12.787	10.296	9.649	9.407	3.613	24.1	c
UPM 1403-6140	758976520	101999830	193.6	149.2	10.6	10.6	...	13.252	...	10.991	10.366	10.174	2.261	55.8	b
UPM 1406-5850	761880385	112189733	-175.4	-64.0	4.2	6.6	16.746	15.180	13.568	12.214	11.621	11.380	2.966	80.6	
UPM 1407-5749	762455713	115832007	253.6	-52.6	10.0	10.1	17.890	16.185	14.303	13.311	12.795	12.541	2.874	145.1	
UPM 1408-6315	763992896	96269737	-167.5	-72.4	5.1	5.3	17.577	16.267	14.705	12.362	11.777	11.517	3.905	60.7	
UPM 1412-6959	766992114	72040016	-178.2	-39.7	4.5	4.6	16.912	14.912	14.256	12.205	11.665	11.385	2.707	74.4	
UPM 1414-6023A	768913676	106583792	-200.8	-87.5	6.4	6.5	16.109	14.192	12.328	11.739	11.151	10.937	2.453	78.4	c
UPM 1414-6023B	768922049	106594300	-189.1	-61.3	4.8	4.7	16.568	17.150	17.718	...	...	...	...	...	c ,d ,g
UPM 1415-6311	769792263	96488756	-246.7	-29.1	10.4	7.5	17.414	15.880	14.282	11.599	11.016	10.763	4.281	35.7	
UPM 1415-5844	770247340	112534141	-142.0	-240.6	7.6	7.7	17.067	15.128	13.915	12.666	12.023	11.801	2.462	110.1	
UPM 1416-6547	770760647	87154578	-154.5	97.2	13.3	18.2	16.250	14.702	13.371	11.036	10.461	10.144	3.666	33.6	
UPM 1416-6846	770849386	76397755	-182.9	-131.7	5.2	4.0	16.417	15.759	14.404	13.367	12.835	12.591	2.392	154.5	
UPM 1418-7605	772902679	50072692	-43.9	-181.7	7.5	9.5	14.643	12.745	11.734	10.339	9.734	9.482	2.406	39.0	f
UPM 1419-5109	773453770	139843693	-125.6	-152.6	13.5	5.2	16.238	14.670	13.099	11.961	11.399	11.181	2.709	83.3	
UPM 1426-6340	779857214	94764404	-183.5	67.4	6.8	18.1	15.798	14.747	14.011	13.550	13.079	12.941	1.197	[250.9]	a ,b
UPM 1427-6705	780541416	82481944	-170.3	-110.3	7.2	7.0	16.896	14.891	13.557	12.078	11.543	11.368	2.813	79.4	
UPM 1430-7722B	783295650	45468699	-67.0	-44.4	7.3	7.1	20.009	18.111	16.593	15.116	14.488	14.296	2.995	280.6	c ,d ,e
UPM 1430-5448	783845768	126695594	-195.4	-111.9	6.9	6.7	16.262	15.582	13.144	12.323	11.716	11.538	3.259	97.6	
UPM 1432-6213	785364757	99996107	-149.4	-144.0	6.2	6.3	16.798	15.410	13.136	12.517	11.844	11.615	2.893	98.9	
UPM 1433-6149	786022560	101424123	-198.2	-12.9	8.1	6.3	16.961	14.678	13.386	12.504	11.919	11.717	2.174	115.2	
UPM 1435-6728	787903652	81063756	-277.5	12.8	7.3	7.1	16.652	14.492	12.999	12.098	11.571	11.368	2.394	93.7	
UPM 1436-6144	788585214	101740867	-97.4	-233.3	7.9	8.2	16.174	14.344	13.071	11.855	11.299	11.091	2.489	82.5	
UPM 1437-6116	789964428	103381853	123.3	-155.2	9.0	22.6	15.313	13.941	12.227	11.541	10.855	10.665	2.400	75.0	
UPM 1439-6433	791205139	91561306	-198.3	-43.0	7.1	7.0	15.121	14.112	13.604	13.110	12.518	12.422	1.002	[171.5]	a ,b
UPM 1442-5937	793810374	109363585	-166.2	-73.5	5.5	9.3	17.286	15.442	12.698	11.310	10.702	10.454	4.132	30.9	
UPM 1442-6702	794095735	82640171	-131.0	-128.7	4.8	5.7	16.827	14.652	12.674	11.716	11.181	10.862	2.936	58.4	
UPM 1442-5915	794124307	110687177	-243.6	-222.5	10.8	10.8	17.846	16.231	14.848	13.288	12.736	12.574	2.943	141.4	
UPM 1443-6554	795028077	86711555	-183.2	-182.4	7.8	8.6	16.370	14.644	12.681	11.880	11.296	11.000	2.764	73.2	
UPM 1448-6357	799625574	93760146	-168.0	-197.1	4.5	4.5	...	...	...	11.091	10.420	10.275	...	...	
UPM 1449-5926	800302397	109989509	-171.8	-75.5	7.9	45.0	15.760	14.604	...	12.384	11.701	11.583	2.220	108.1	b
UPM 1449-6056	800518005	104607864	187.8	58.2	28.3	20.1	14.203	11.948	10.818	10.224	9.608	9.357	1.724	45.2	
UPM 1449-5130	800558946	138542514	-207.9	-161.2	7.8	9.0	16.622	15.191	13.019	11.750	11.123	10.926	3.441	55.9	
UPM 1452-5459	803454332	126035105	-250.3	-116.9	10.1	10.5	17.452	16.162	14.856	11.426	10.817	10.561	4.736	31.2	
UPM 1453-5010	803753281	143395678	-173.6	-91.2	11.2	11.0	18.047	16.525	14.412	13.280	12.689	12.436	3.245	120.3	
UPM 1453-7305	803890316	60868008	-21.5	211.7	15.2	15.2	...	14.823	...	11.052	10.501	10.261	3.771	27.9	b
UPM 1454-6013	804616852	107210805	-253.1	-198.5	10.3	8.0	16.823	15.696	13.935	11.618	11.103	10.858	4.078	44.5	
UPM 1454-6322	804798590	95867997	-110.5	-151.9	4.7	10.5	14.814	13.233	12.794	11.063	10.436	10.270	2.170	55.3	

TABLE 2—*Continued*

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 1454-5809	805350729	114653491	-36.4	188.0	13.1	13.1	16.770	14.890	13.200	10.635	10.063	9.776	4.255	20.9	
UPM 1455-4904	806346721	147309534	-156.8	-89.2	6.6	6.5	14.785	13.811	11.602	11.580	10.949	10.737	2.231	72.9	
UPM 1503-5007B	813027719	143532327	...	...	...	...	...	...	...	11.727	11.174	10.921	...	...	d ,c
UPM 1503-5007A	813028013	143524824	-238.2	-193.2	7.5	7.0	14.234	12.109	10.235	10.655	10.109	9.835	1.454	57.6	c
UPM 1511-5319	820599480	132025375	10.6	-179.8	3.5	3.5	16.131	14.364	13.682	11.998	11.430	11.202	2.366	85.4	f
UPM 1513-5602	822002567	122233112	-190.6	-97.3	4.3	3.5	15.978	14.268	12.471	11.162	10.617	10.319	3.106	45.7	
UPM 1515-6258	823574156	97313936	-190.1	-110.5	9.1	8.2	16.900	16.131	14.793	11.735	11.130	10.852	4.396	35.6	
UPM 1515-7325	823782967	59696719	174.0	-189.4	10.1	15.5	17.600	15.781	13.903	12.626	12.141	11.913	3.155	94.0	
UPM 1517-5807	826033939	114763609	-188.8	-17.3	7.0	6.9	15.883	14.016	14.209	11.903	11.226	11.088	2.113	73.0	
UPM 1519-7255	827454427	61484348	-194.5	-216.5	7.7	7.5	16.426	14.266	11.940	10.898	10.297	9.993	3.368	32.3	
UPM 1521-4835	829428454	149044795	-234.3	-146.1	11.3	11.3	17.385	15.988	13.830	12.255	11.683	11.428	3.733	62.1	
UPM 1523-4913	831258441	146791866	-94.7	-180.7	8.7	7.9	16.331	14.663	13.027	11.475	10.810	10.588	3.188	48.5	
UPM 1523-5454	831355688	126325591	-60.6	200.9	14.9	14.9	17.770	11.791	9.697	9.767	9.194	8.871	2.024	20.4	
UPM 1524-5439	831659121	127212227	-187.7	-39.2	7.7	7.9	15.966	14.134	12.376	11.510	10.966	10.751	2.624	68.6	f
UPM 1526-4930	833429461	145750882	-154.9	-115.6	8.9	7.9	13.599	11.582	10.794	9.983	9.350	9.177	1.599	43.9	f
UPM 1528-5839B	835757400	112820999	5.9	-197.8	6.5	6.5	18.311	18.503	18.776	...	...	...	...	...	c ,d ,g
UPM 1528-5839A	835780889	112825365	2.1	-197.2	4.2	4.1	15.182	13.233	11.679	10.416	9.777	9.528	2.817	33.3	c
UPM 1530-5511	837643179	125327924	-95.1	-153.8	6.9	7.0	15.742	13.925	12.143	11.511	10.875	10.684	2.414	71.3	
UPM 1533-6556	840377734	86586399	-148.6	-137.4	7.3	7.4	16.368	14.167	12.510	11.836	11.297	11.026	2.331	81.2	
UPM 1537-5610	843606725	121747354	-133.2	-133.6	3.5	3.5	15.275	13.265	11.568	10.839	10.207	10.004	2.426	49.8	
UPM 1538-5456	844492903	126230428	-102.9	-207.1	14.3	14.3	17.152	16.178	13.882	12.213	11.678	11.392	3.965	62.1	
UPM 1540-5023	846454757	142615035	-229.8	-95.6	8.3	8.0	15.638	14.696	14.199	13.166	12.711	12.579	1.530	[186.4]	a
UPM 1540-5550	846546026	122995128	-173.8	-262.2	7.9	7.9	15.877	14.542	12.672	11.654	11.053	10.762	2.888	66.5	
UPM 1540-6447	846621188	90731820	-153.0	-199.7	8.4	8.4	14.958	15.441	12.219	12.503	11.872	11.671	2.938	85.0	b
UPM 1542-5659	848144097	118835541	-171.0	-207.7	2.8	2.9	14.702	14.200	12.327	12.050	11.401	11.247	2.150	96.0	
UPM 1542-5041	848609832	141523338	182.4	-16.3	3.6	3.6	...	9.924	9.592	9.440	8.867	8.690	0.484	33.1	b ,f
UPM 1543-5449	848811762	126606709	-149.9	-135.8	10.4	8.2	16.944	15.432	13.822	12.092	11.625	11.359	3.340	70.5	
UPM 1543-5812	848814656	114427930	-204.9	-101.7	6.9	6.6	15.176	13.101	11.994	10.727	10.080	9.847	2.374	45.0	
UPM 1543-7306	848944114	60833296	-136.4	-124.6	6.3	5.6	14.182	13.352	12.361	11.797	11.119	11.016	1.555	98.1	
UPM 1544-5208	849748641	136318898	-57.1	-180.3	7.6	7.5	17.691	16.196	14.821	12.951	12.442	12.262	3.245	111.1	
UPM 1544-5341	850150522	130717165	-259.8	-95.8	6.8	7.1	17.198	15.609	14.004	12.663	12.117	11.920	2.946	106.0	
UPM 1545-5259	850605613	133228438	-182.9	-168.4	5.4	3.6	17.864	16.312	14.084	12.045	11.455	11.147	4.267	40.8	
UPM 1545-5018	851366897	142904161	-252.2	-81.7	9.0	8.3	13.765	12.692	11.167	10.694	10.093	9.841	1.998	53.9	f
UPM 1548-5045A	853752961	141274236	-92.4	-175.3	6.9	6.5	15.788	13.638	11.611	10.526	9.912	9.660	3.112	30.6	c
UPM 1548-5045B	853766317	141285738	-57.1	-155.8	8.5	8.5	18.117	16.525	14.265	12.184	11.580	11.295	4.341	41.9	c ,d ,e
UPM 1549-8434	854968181	19516753	-82.3	-227.6	3.6	3.1	14.195	13.148	12.361	13.187	12.606	12.344	-0.039	227.6	b ,h
UPM 1555-5939	859698048	109256622	-148.1	-139.3	7.1	9.2	16.489	15.353	14.277	13.814	13.177	12.962	1.539	[242.2]	a
UPM 1556-4823	861083858	149761425	-177.9	-187.5	7.2	20.4	14.810	14.203	12.467	11.234	10.637	10.404	2.969	56.9	
UPM 1557-4852	861748184	148032598	-155.8	-90.3	12.7	8.6	16.301	14.588	12.855	11.408	10.922	10.709	3.180	54.2	
UPM 1557-8159	862016282	28823775	-195.9	-195.8	9.4	9.9	16.861	14.747	12.909	11.655	11.101	10.850	3.092	54.0	
UPM 1600-8109	864215257	31836852	-211.6	-5.7	11.3	11.4	17.252	15.740	13.875	12.369	11.846	11.606	3.371	77.8	
UPM 1600-7402	864883254	57469688	-150.2	-108.1	5.6	8.1	18.249	16.461	15.124	12.875	12.309	12.080	3.586	81.2	
UPM 1602-5650	866299723	119342424	-140.2	-115.0	4.5	4.5	15.480	...	12.298	10.461	9.865	9.617	...	29.3	
UPM 1603-4710	867405600	154185744	-127.6	-132.7	8.3	16.6	17.317	15.898	14.368	11.992	11.456	11.183	3.906	51.4	
UPM 1606-5801	869542767	115123561	-163.3	-152.5	27.1	27.1	15.164	13.617	11.964	11.369	10.723	10.479	2.248	70.9	
UPM 1606-5502	870063998	125864104	170.0	-97.6	16.5	16.5	17.273	14.092	13.190	12.050	11.416	11.188	2.042	78.5	h
UPM 1606-6424	870071528	92152496	-87.6	-180.2	4.7	13.2	16.111	14.240	12.086	11.667	11.033	10.848	2.573	72.5	
UPM 1612-6211	875631410	100096982	-224.6	-196.4	9.4	10.0	15.267	13.734	11.920	11.881	11.321	10.990	1.853	90.8	
UPM 1614-5644	877400692	119748242	-172.4	132.6	36.6	6.6	18.660	15.727	16.251	12.346	11.702	11.535	3.381	39.8	
UPM 1616-5634	879009940	120353677	-70.2	178.7	9.7	9.7	...	...	...	11.411	10.838	10.628	...	...	
UPM 1617-6126	879365812	102805939	179.1	42.7	17.7	4.8	13.051	12.228	11.139	11.461	10.892	10.685	0.767	88.4	b
UPM 1618-5500	880614502	125984834	-157.1	-140.8	11.6	8.8	16.144	14.059	12.493	11.928	11.333	11.116	2.131	92.5	
UPM 1622-5139	884266236	138014836	-175.0	-71.2	4.6	4.7	...	...	...	12.950	12.303	12.138	...	...	
UPM 1626-5519	887625825	124812716	59.6	184.7	13.0	12.5	...	...	...	12.012	11.358	11.126	...	...	
UPM 1628-4844	890083966	148558590	-75.0	-172.4	7.0	7.5	16.048	13.841	11.418	10.613	10.014	9.704	3.228	30.4	
UPM 1629-6116	890347726	103423813	-82.8	-214.7	13.2	13.7	15.763	15.487	12.728	12.748	12.150	11.907	2.739	101.2	b
UPM 1632-5634	893446159	120340545	-107.2	-165.7	9.5	27.5	17.638	16.345	14.770	12.654	12.149	11.885	3.691	80.2	
UPM 1635-5202	896058321	136679193	-185.5	94.4	12.3	9.3	16.727	14.731	12.217	10.408	9.795	9.559	4.323	17.6	
UPM 1636-8117	896834696	31361390	164.7	-165.3	11.3	10.8	16.856	14.775	12.984	11.730	11.194	10.924	3.045	57.6	
UPM 1637-5341	897823748	130696230	-145.2	-177.6	14.8	14.8	17.660	14.602	15.098	13.321	12.569	12.422	1.281	[155.0]	a ,f
UPM 1640-5303	900133048	132983329	-29.3	-180.0	10.9	6.1	16.624	14.572	12.596	12.182	11.541	11.324	2.390	92.7	
UPM 1641-4957	901066844	144129914	-176.7	-65.6	8.8	8.8	...	15.196	13.389	11.012	10.478	10.202	4.184	22.0	
UPM 1641-4822	901220912	149877925	-184.8	-111.7	6.9	6.9	16.645	15.221	13.345	11.625	11.119	10.836	3.596	50.1	
UPM 1641-5351	901600603	130095538	-123.7	-159.0	8.5	8.5	14.447	12.496	10.954	11.853	11.255	11.023	0.643	84.5	b

TABLE 2—*Continued*

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 1643-6144	903514948	101747311	-130.5	-125.0	8.3	8.4	17.004	14.684	13.184	12.734	12.159	11.972	1.950	141.3	
UPM 1644-4757	904185355	151357617	130.5	-146.0	9.9	9.6	17.355	15.071	13.129	11.733	11.181	10.903	3.338	47.5	
UPM 1645-4853	905208118	148011805	-79.3	-185.3	12.0	12.3	18.232	16.791	15.248	13.113	12.607	12.331	3.678	95.5	
UPM 1651-5406	910203559	129209633	-25.3	-190.5	8.7	5.2	14.705	12.587	10.957	9.955	9.302	9.103	2.632	29.0	
UPM 1658-5934	916311580	109519753	129.4	164.2	11.3	11.2	16.306	14.415	12.710	11.745	11.086	10.882	2.670	68.1	
UPM 1658-5311A	917041848	132497063	-163.5	-229.3	8.2	7.8	15.892	13.661	11.399	10.490	9.914	9.560	3.171	28.6	c
UPM 1658-5311B	917159205	132450388	-11.6	-134.1	9.5	9.4	16.346	14.562	11.906	11.001	10.400	10.014	3.561	33.0	c ,d ,e ,h
UPM 1703-5441	921435004	127082284	-171.6	-150.6	5.3	5.4	16.594	15.442	13.273	12.643	12.124	11.935	2.799	128.5	
UPM 1703-4934B	921462541	145546027	-28.6	72.6	31.3	31.3	15.243	17.305	16.288	11.005	10.397	10.132	6.300	40.7	c ,d ,e ,f
UPM 1704-7751	922050168	43712233	-162.3	-196.3	11.2	10.9	18.261	16.287	14.432	13.197	12.657	12.449	3.090	118.0	
UPM 1704-8055	922365146	32647192	-109.9	-229.3	15.6	12.3	18.327	16.572	15.085	13.459	12.921	12.666	3.113	131.7	
UPM 1706-5449	924280382	126610913	-84.1	-215.3	48.8	42.1	15.393	14.004	12.177	11.549	10.972	10.756	2.455	78.7	
UPM 1709-5644	926355078	119715597	-82.3	-160.7	3.6	3.8	15.744	14.072	12.643	11.914	11.329	11.127	2.158	97.7	
UPM 1710-5300	927664633	133174754	-34.3	-179.9	2.5	1.5	12.469	10.032	7.989	8.001	7.407	7.163	2.031	13.5	
UPM 1713-7336	930246842	59036684	-66.7	-182.7	7.9	18.1	17.420	15.351	13.715	12.637	12.030	11.795	2.714	98.4	
UPM 1719-6255B	935394345	97476797	-94.0	-153.7	6.8	7.2	17.187	15.079	13.376	12.554	12.016	11.735	2.525	105.6	c
UPM 1720-4836	936087252	149033584	-78.1	-167.1	7.8	28.8	16.962	15.144	13.163	12.115	11.508	11.290	3.029	72.9	
UPM 1725-4709	941154374	154211346	-57.6	-191.5	6.9	6.6	15.987	13.942	12.770	12.865	12.232	12.013	1.077	[168.1]	a ,b
UPM 1727-6239	942304521	98410597	-230.9	-48.7	9.7	9.3	16.500	13.266	11.233	11.034	10.434	10.182	2.232	47.7	
UPM 1728-5128	943526046	138700980	-29.6	-178.3	7.3	6.7	17.366	14.772	13.268	12.348	11.809	11.558	2.424	91.9	
UPM 1732-4700	947055769	154749702	-45.8	-174.9	3.0	3.0	16.079	14.033	11.310	11.327	10.752	10.551	2.706	50.7	
UPM 1732-4736	947129106	152581933	-205.7	-203.9	6.9	6.7	14.880	12.769	10.996	9.586	8.977	8.682	3.183	18.5	
UPM 1744-4922	958370713	146277461	-139.9	-127.0	46.4	6.9	17.069	15.168	14.370	13.521	12.964	12.794	1.647	[227.4]	a
UPM 1746-5251	959779165	133698582	-160.1	191.7	5.4	5.7	17.552	15.253	13.867	13.050	12.447	12.282	2.203	147.8	f
UPM 1748-7247	961476350	61937161	-195.5	-246.2	11.9	10.2	17.436	15.452	13.687	12.481	11.941	11.722	2.971	88.5	
UPM 1749-7530	962401296	52159553	159.0	-113.5	9.0	9.0	14.809	13.643	12.653	12.925	12.363	12.117	0.718	181.6	
UPM 1754-7701	967289539	46733484	-1.3	-208.7	10.4	10.6	14.829	13.029	12.189	11.369	10.680	10.578	1.660	78.9	
UPM 1756-7406A	969047217	57217628	-78.4	-201.7	15.6	15.6	18.282	16.576	14.247	12.051	11.470	11.236	4.525	37.3	c
UPM 1756-7406B	969067800	57217099	-279.1	-203.5	9.3	10.8	...	17.937	...	13.836	13.318	12.960	4.101	83.4	b ,c ,d
UPM 1756-6126	969289853	102830753	-50.2	-173.6	6.9	17.6	16.331	13.869	12.214	11.073	10.526	10.282	2.796	44.3	
UPM 1758-4705	970965439	154485573	156.1	-93.2	7.8	7.9	16.856	14.924	13.319	12.708	12.175	11.932	2.216	135.6	
UPM 1812-6433	983319061	91560079	-13.6	-181.7	10.5	9.9	16.634	13.901	12.936	11.822	11.244	11.008	2.079	78.3	
UPM 1815-6406	985813582	93223937	-178.9	-178.5	5.2	4.5	14.412	12.436	10.579	9.748	9.219	8.965	2.688	28.6	
UPM 1817-8649	987374698	11424241	-189.2	237.9	10.3	11.0	16.396	14.483	...	11.927	11.369	11.161	2.556	85.2	
UPM 1824-4850	994028323	148141997	163.0	-243.1	9.0	9.7	16.821	14.645	13.265	12.647	12.069	11.859	1.998	134.5	f
UPM 1833-7136	1002337631	66220145	-6.7	-188.9	14.9	13.8	18.476	16.563	14.288	12.973	12.340	12.102	3.590	79.7	
UPM 1834-6047	1003145785	105173051	14.7	-189.0	10.2	9.8	14.884	13.363	11.637	10.850	10.274	10.038	2.513	54.0	f
UPM 1836-5826	1004981205	113593259	61.4	-177.6	5.2	6.1	16.118	14.741	13.216	12.081	11.409	11.135	2.660	82.7	
UPM 1852-6027	1018955088	106373799	-218.6	-204.3	7.7	7.8	16.450	14.503	12.940	11.684	11.116	10.900	2.819	64.3	
UPM 1858-6804	1024609765	78939442	-129.6	-125.5	5.5	3.8	16.990	15.315	14.638	13.659	13.213	13.034	1.656	[243.8]	a
UPM 1900-7029	1026744100	70203767	-54.0	-173.7	8.3	8.4	17.506	15.443	13.346	11.990	11.408	11.145	3.453	52.9	
UPM 1909-4927	1034415320	145978861	-127.5	-222.8	13.5	10.6	17.147	15.145	13.945	13.029	12.383	12.195	2.116	151.4	
UPM 1912-4942	1037156800	145077070	24.7	-189.1	9.0	9.2	16.544	14.410	12.745	11.732	11.107	10.890	2.678	65.0	
UPM 1917-6941	1041816777	73138163	35.6	-208.4	11.7	10.0	16.928	15.030	12.970	11.763	11.149	10.882	3.267	52.6	f
UPM 1923-5050	1047094221	140965899	-152.7	-96.9	14.5	10.5	15.979	14.159	13.200	12.438	11.863	11.722	1.721	137.5	
UPM 1924-5328	1048004792	131493209	-120.3	137.8	2.8	2.7	13.888	11.697	10.744	10.919	10.301	10.073	0.778	70.0	b
UPM 1924-6646	1048323630	83623834	49.2	-202.2	8.1	8.3	16.538	14.551	12.610	11.645	11.073	10.878	2.906	62.3	
UPM 1926-5838	1050092012	112868363	-262.3	-182.4	8.7	8.9	16.783	14.705	12.843	11.047	10.570	10.298	3.658	32.8	
UPM 1927-6334	1050328043	95124273	201.0	-144.0	35.7	15.1	17.580	15.245	14.151	12.991	12.462	12.259	2.254	142.4	
UPM 1930-7112	1053133323	67662282	-153.4	-109.2	9.1	9.3	16.626	14.906	12.993	11.722	11.111	10.833	3.184	55.0	
UPM 1932-6707	1055210338	82373484	39.4	-188.9	2.5	3.4	14.962	13.038	12.098	11.033	10.422	10.257	2.005	65.3	
UPM 1935-5936	1057892042	109409490	45.0	-194.9	9.4	9.6	16.515	14.637	12.770	11.755	11.128	10.893	2.882	63.1	
UPM 1941-4928	1063289596	145911664	-180.0	-30.6	9.0	9.0	16.876	12.514	11.181	11.367	10.808	10.514	1.147	58.9	
UPM 1943-6049	1065224052	105007320	-61.9	-216.5	9.7	9.8	17.207	15.251	13.636	12.565	11.991	11.785	2.686	103.0	
UPM 1950-6013B	1071297914	107145608	...	...	...	...	...	...	...	13.978	13.500	13.202	...	...	c ,d
UPM 1950-6013A	1071312857	107171254	-31.2	-268.7	10.1	10.3	15.298	13.502	12.186	11.538	11.009	10.771	1.964	87.1	c
UPM 1952-5539	1073529066	123644245	18.1	-188.5	11.8	12.1	14.853	13.632	12.898	12.297	11.862	11.801	1.335	148.1	
UPM 1956-6116	1076858244	103394149	-151.0	-167.7	9.7	10.4	18.048	16.396	15.079	13.653	13.080	12.919	2.743	178.1	
UPM 2002-4735	1082313871	152672097	16.5	-199.3	10.8	11.1	16.823	15.193	14.310	13.745	13.137	12.931	1.448	[248.6]	a
UPM 2008-6305B	1088024100	96844499	77.4	-181.2	13.3	14.7	13.811	12.005	10.679	12.395	11.150	11.582	-0.390	125.7	b ,c ,d
UPM 2010-5353	1089659723	129992428	-3.9	-218.7	8.7	9.1	17.183	14.982	12.701	11.399	10.732	10.446	3.583	34.5	
UPM 2013-5751	1092393887	115706680	37.1	-257.5	11.5	12.4	15.821	14.400	13.682	12.930	12.373	12.298	1.470	[181.8]	a ,f
UPM 2021-5858	1099009333	111686918	-150.9	-181.6	17.4	16.7	18.041	16.064	14.328	13.016	12.519	12.238	3.048	108.5	
UPM 2024-4824	1102094399	149701952	-180.5	-46.0	3.9	3.9	17.838	15.911	14.287	13.138	12.638	12.406	2.773	135.0	

TABLE 2—*Continued*

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sigμ_α (mas/yr)	sigμ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 2036-5548A	1112699891	123087548	45.1	-174.6	2.3	2.1	16.152	13.565	12.298	12.103	11.511	11.324	1.462	114.8	c ,f
UPM 2036-5548B	1112708550	123089700	...	...	...	...	19.025	...	...	14.229	13.732	13.493	...	233.8	b ,c ,d
UPM 2038-4938	1114739048	145270905	70.2	-204.3	9.4	10.0	15.787	13.595	11.507	10.754	10.089	9.838	2.841	37.2	
UPM 2042-5552	1117911466	122822515	-237.8	-87.2	13.6	10.9	17.157	15.252	14.108	12.839	12.320	12.073	2.413	132.0	
UPM 2043-5751	1119153753	115707535	249.5	-125.3	13.5	12.6	18.103	16.133	14.452	12.891	12.309	12.068	3.242	89.2	
UPM 2049-5415B	1124176381	128699125	197.2	44.3	7.0	11.8	18.253	16.119	14.134	12.625	12.006	11.717	3.494	64.7	c ,d
UPM 2049-5415A	1124200971	128684871	180.4	53.2	11.4	11.1	16.068	13.982	12.284	11.104	10.480	10.244	2.878	44.3	c
UPM 2050-5044	1125736631	141342485	209.4	-17.7	8.9	8.9	17.608	15.385	13.619	12.420	11.864	11.620	2.965	79.7	
UPM 2051-5733	1126543636	116760305	124.5	-130.1	8.0	6.8	17.840	15.995	14.387	12.742	12.147	11.891	3.253	83.5	
UPM 2055-6059	1130089106	104450175	91.2	-164.8	11.3	11.3	16.081	14.762	13.173	11.509	10.955	10.684	3.253	54.6	
UPM 2057-5839	1132155449	112852294	185.8	-261.0	10.0	10.3	16.739	14.688	13.046	11.610	10.990	10.770	3.078	51.6	
UPM 2059-5711	1133803361	118094897	194.7	-136.3	18.2	18.2	18.607	16.418	14.608	13.039	12.442	12.169	3.379	83.1	
UPM 2106-5706B	1139440736	118437233	162.6	-178.8	16.3	15.1	18.226	16.111	14.254	12.687	12.186	11.927	3.424	76.6	c
UPM 2109-5305	1142615989	132880256	33.0	-207.9	14.4	14.5	18.133	15.963	15.182	14.271	13.625	13.314	1.692	[279.0]	a
UPM 2112-5121	1145134513	139091864	153.6	-137.4	7.5	8.5	16.504	14.213	11.974	11.122	10.491	10.221	3.091	39.5	
UPM 2112-5954	1145241065	108340688	-177.4	-51.5	11.5	11.5	15.928	14.047	12.755	11.392	10.773	10.583	2.655	59.2	
UPM 2112-6215	1145389750	99864555	-76.1	175.3	5.0	4.2	...	...	...	13.961	13.358	13.204	...	...	
UPM 2113-5307	1146511831	132730907	211.6	-172.0	12.5	11.4	17.439	15.535	14.916	13.617	12.999	12.869	1.918	[211.7]	a
UPM 2114-5545	1147399145	123271869	-147.6	-113.1	2.3	2.3	13.292	11.856	11.127	10.571	10.047	9.949	1.285	63.1	
UPM 2119-5856	1151370742	111836222	-142.4	-117.5	10.4	3.5	15.891	14.298	12.323	11.383	10.758	10.492	2.915	55.2	
UPM 2119-8445	1151637008	18871742	-47.9	-174.6	4.2	4.2	...	...	...	11.413	10.817	10.575	...	...	
UPM 2129-7843	1160418602	40599605	14.9	-179.8	11.7	3.9	15.628	14.579	14.055	12.986	12.402	12.264	1.593	153.4	
UPM 2148-5404	1177649631	129334900	-135.2	-119.2	4.3	2.5	17.123	15.118	13.384	11.960	11.344	11.101	3.158	58.6	
UPM 2247-5707	1230566367	118338374	179.7	-120.1	12.6	12.7	17.245	15.259	13.878	12.656	12.167	11.879	2.603	111.0	
UPM 2316-6309	1256781310	96640937	248.8	41.7	10.4	10.3	17.413	15.371	13.843	12.257	11.699	11.494	3.114	72.1	
UPM 2353-7426	1289770038	55991827	24.1	-179.1	4.2	3.8	16.614	14.526	13.240	12.605	12.032	11.884	1.921	142.2	

[a] Subdwarf candidate picked from RPM diagram; plate distance [in bracket] is incorrect

[b] Number of relations used for distance estimate < 6: plate distance less reliable

[c] Common proper motion companion; see Table 4

[d] Not detected during automated search but noticed by eye during the blinking process

[e] Proper motions suspect

[f] Possible NLTT star with a position difference $> 90''$ when compared to UCAC3 position

[g] Source not in 2MASS

[h] SuperCOSMOS plate magnitudes suspect

Table 3

New UCAC3 High Proper Motion Systems estimated to be within 25 pc between Declinations $-90°$ and $-47°$ with $0\farcs40\ \mathrm{yr}^{-1} > \mu \geq 0\farcs18\ \mathrm{yr}^{-1}$

Name	RA (mas)	DEC (mas)	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	sig μ_α (mas/yr)	sig μ_δ (mas/yr)	B_J	R_{59F}	I_{IVN}	J	H	K_s	$R_{59F} - J$	Est Dist (pc)	Notes
UPM 0559-5225	323598169	135295015	120.7	152.6	4.5	4.4	14.532	12.000	10.287	9.628	8.951	8.703	2.372	24.9	
UPM 0621-6111	343586117	103726637	11.4	204.6	5.8	5.3	16.108	14.256	12.028	10.427	9.788	9.534	3.829	21.8	
UPM 0901-6526	487375530	88399668	-68.4	196.4	6.7	6.7	16.269	14.219	11.471	10.140	9.589	9.282	4.079	18.0	
UPM 1104-6232	598106935	98845495	-207.8	-58.5	6.0	6.2	16.423	14.086	11.484	10.256	9.677	9.357	3.830	19.4	
UPM 1105-5825A	598956034	113681441	-176.1	51.5	4.2	4.2	16.916	···	13.713	10.298	9.711	9.496	···	15.2	a, b
UPM 1142-6440	632248846	91165839	-183.4	-205.1	32.2	16.8	16.067	14.081	11.418	10.393	9.846	9.481	3.688	23.7	
UPM 1230-5736B	675249073	116560461	-243.0	-29.3	6.9	6.5	14.928	12.828	10.998	9.694	9.033	8.785	3.134	19.8	a, c
UPM 1230-5736A	675783245	116623954	-227.6	-66.5	6.8	6.5	13.794	12.035	10.550	9.348	8.712	8.445	2.687	22.2	a, c
UPM 1354-7121	751408498	67092222	-165.0	-132.7	6.5	6.8	12.598	10.665	8.750	8.549	7.920	7.672	2.116	19.3	
UPM 1401-6405A	757555362	93281664	-172.2	-140.9	7.1	7.0	15.536	13.909	12.787	10.296	9.649	9.407	3.613	24.1	a
UPM 1454-5809	805350729	114653491	-36.4	188.0	13.1	13.1	16.770	14.890	13.200	10.635	10.063	9.776	4.255	20.9	
UPM 1523-5454	831355688	126325591	-60.6	200.9	14.9	14.9	17.770	11.791	9.697	9.767	9.194	8.871	2.024	20.4	
UPM 1635-5202	896058321	136679193	-185.5	94.4	12.3	9.3	16.727	14.731	12.217	10.408	9.795	9.559	4.323	17.6	
UPM 1641-4957	901066844	144129914	-176.7	-65.6	8.8	8.8	···	15.196	13.389	11.012	10.478	10.202	4.184	22.0	
UPM 1710-5300	927664633	133174754	-34.3	-179.9	2.5	1.5	12.469	10.032	7.989	8.001	7.407	7.163	2.031	13.5	
UPM 1732-4736	947129106	152581933	-205.7	-203.9	6.9	6.7	14.880	12.769	10.996	9.586	8.977	8.682	3.183	18.5	

[a]Common proper motion companion; see Table 4

[b]SuperCOSMOS plate magnitudes suspect

[c]Possible NLTT star with a position difference $> 90''$ when compared to UCAC3 position

Table 4
Common Proper Motion Candidate Systems

Primary	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Distance (pc)	Secondary/Tertiary	$\mu_\alpha \cos\delta$ (mas/yr)	μ_δ (mas/yr)	Distance (pc)	Separation ($''$)	θ ($^\circ$)	notes
UPM 0111-7655A	130.0	31.4	64.4	UPM 0111-7655B	182.5	35.6	109.9	46.8	241.7	[a],[f]
UPM 0245-8833A	174.6	59.1	34.5	UPM 0245-8833B	175.7	89.7	···	6.8	15.0	[a]
UPM 0320-4847A	230.8	147.8	37.7	UPM 0320-4847B	208.7	93.3	396.9	41.7	280.2	[a],[b]
UPM 0533-5210A	-80.5	180.7	58.2	UPM 0533-5210B	···	···	···	7.7	161.4	[a]
UPM 0608-5301A	-131.1	208.6	37.1	WD 0607-530B	-115.5	172.1	[98.8]	21.5	120.7	[a],[c],[d], 34.2pc
UPM 0740-5207A	-37.7	-221.5	38.9	UPM 0740-5207B	6.6	-240.0	···	15.4	34.2	[a],[e]
NLTT 19906A	-150.5	338.0	···	NLTT 19907B	-150.5	338.0	···	5.1	71.5	[f]
				UPM 0835-6018C	-184.6	-17.7	50.3	113.0	49.3	[f]
UPM 0837-6435A	-46.7	175.2	46.0	UPM 0837-6435B	-29.6	158.4	106.6	9.4	281.6	[a],[f]
UPM 0846-7345A	-129.3	127.6	61.6	UPM 0846-7345B	-125.4	112.9	88.4	24.2	184.6	[a],[f]
UPM 0928-5442A	-129.4	137.3	57.1	UPM 0928-5442B	-91.0	147.9	93.0	26.6	87.9	[a],[g],[f]
UPM 1040-5728A	-151.4	131.1	88.8	UPM 1040-5728B	-224.2	138.9	164.7	7.3	102.1	[a],[d],[g]
UPM 1044-7053A	-217.5	17.6	57.8	UPM 1044-7053B	-217.5	36.5	92.3	34.8	178.9	[a]
UPM 1104-7107A	-197.3	-83.8	60.9	UPM 1104-7107B	20.3	23.1	44.6	10.8	28.6	[a],[d],[f],[g]
UPM 1105-5825A	-176.1	51.5	15.2	UPM 1105-5825B	-141.8	56.9	38.4	32.3	59.5	[a],[f],[g]
UPM 1136-5358A	-215.3	-74.1	36.3	UPM 1136-5358B	-247.7	-69.6	···	15.9	1.1	[a],[b],[e],[g]
NLTT 29430A	-175.4	-42.5	···	UPM 1203-4910B	-177.1	-40.5	97.5	41.4	270.2	[a]
UPM 1230-5736A	-227.6	-66.5	22.2	UPM 1230-5736B	-243.0	-29.3	19.8	293.1	257.5	[b]
UPM 1401-6405A	-172.2	-140.9	24.1	UPM 1401-6405B	-185.2	-149.3	76.3	30.1	339.1	[a]
UPM 1414-6023A	-200.8	-87.5	78.4	UPM 1414-6023B	-189.1	-61.3	···	11.3	21.5	[a],[e]
NLTT 37372A	-180.8	-79.8	80.4	UPM 1430-7722B	-67.0	-44.4	280.6	18.8	37.5	[a],[f]
UPM 1503-5007A	-238.2	-193.2	57.6	UPM 1503-5007B	···	···	···	7.5	358.6	[a]
UPM 1528-5839A	2.1	-197.2	33.3	UPM 1528-5839B	5.9	-197.8	···	13.0	250.3	[a],[e]
UPM 1548-5045A	-92.4	-175.3	30.6	UPM 1548-5045B	-57.1	-155.8	41.9	14.3	36.3	[a],[f]
UPM 1658-5311A	-163.5	-229.3	28.6	UPM 1658-5311B	-11.6	-134.1	33.0	84.4	123.6	[a],[g],[f]
NLTT 44051A	-189.2	19.2	38.5	UPM 1703-4934B	-28.6	72.6	40.7	8.1	315.1	[a],[b],[g],[f]
WT 549A	-94.4	-155.3	65.5	UPM 1719-6255B	-94.0	-153.7	105.6	84.0	185.0	[a]
UPM 1756-7406A	-78.4	-201.7	37.3	UPM 1756-7406B	-279.1	-203.5	83.4	5.7	95.4	[a],[d]
UPM 1950-6013A	-31.2	-268.7	87.1	UPM 1950-6013B	···	···	···	26.7	196.1	[a]
NLTT 48738A	52.5	-173.0	43.4	UPM 2008-6305B	77.4	-181.2	125.7	5.7	67.2	[a],[d]
UPM 2036-5548A	45.1	-174.6	114.8	UPM 2036-5548B	···	···	233.8	5.3	66.1	[a],[b],[d]
UPM 2049-5415A	180.4	53.2	44.3	UPM 2049-5415B	197.2	44.3	64.7	20.2	314.8	[a]
NLTT 50475A	133.9	-198.0	12.5	UPM 2106-5706B	162.6	-178.8	76.6	166.4	356.4	[a],[d]

[a] Not detected during automated search but noticed by eye during the blinking process

[b] Possible NLTT star with a position difference $> 90''$ when compared to UCAC3 position

[c] White dwarf, plate distance [in bracket] is incorrect with a more accurate distance in the notes

[d] Number of relations used for distance estimate < 6; plate distance less reliable

[e] Source not in 2MASS

[f]Proper motions suspect

[g]SuperCOSMOS plate magnitudes suspect